RESOURCE ALLOCATION AND COMPETITION:

A CASE STUDY OF CHARTER AND TRADITIONAL PUBLIC SCHOOL SPENDING

IN THE NEW ORLEANS EDUCATIONAL MARKETPLACE

by

Joseph Lawrence Daschbach

Dissertation Committee:

Professor Luis Huerta, Sponsor
Professor Jeffrey Henig

Approved by the Committee on the Degree of Doctor of Education

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ABSTRACT

RESOURCE ALLOCATION AND COMPETITION: A CASE STUDY OF CHARTER AND TRADITIONAL PUBLIC SCHOOL SPENDING IN THE NEW ORLEANS EDUCATIONAL MARKETPLACE

Joseph Lawrence Daschbach

School reforms in New Orleans have brought sweeping changes to the way public schools are governed and managed, and to the way in which students are assigned to public schools. Non-profit charter school boards now govern over 90% of public schools, and families are able to choose the public school in which they enroll. Competition within the system of schools is expected to compel schools to differentiate themselves from each other in order to attract and retain students. School-level budgetary data provide one source of information with which to examine the priorities schools establish as they seek to differentiate themselves. There is a significant body of research comparing the resource allocation patterns in traditional public schools to those in charter schools. Often, however, these comparisons are drawn between schools that do not operate in a single educational marketplace. Rather, they compare schools within different geographic areas that may not be in direct competition with each other. Many of the studies also fail to

distinguish between non-network charter schools and those run by centralized charter school networks. This quantitative case study uses the New Orleans public school marketplace as a critical case for examining how governance and management structures impact school spending. Specifically, the study aims to identify, describe, and understand whether and how school-level resource allocation patterns differ across schools of different governance and management structures, and how those patterns might be influenced by market competition.

This research uses linear regression models to estimate differences in resource allocation between traditional public and charter schools in the educational marketplace, after controlling for student and school-level characteristics. School expenditures are examined over a variety of expense categories and human resource indicators. Data from New Orleans suggest that privatization and decentralization have a significant impact on how resources are allocated at the school level. Importantly, however, no significant spending differences emerge when data are aggregated to the level of the local education agency. In other words, spending in the traditional public school district, charter management organizations, and single site charter schools appear similar, irrespective of governance and management structure of those organizations.

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I - INTRODUCTION

Since their inception in 1992, the number of charter schools in the United States has continued to increase. In 2014-15, charter schools served nearly 3 million students in 43 states and the District of Columbia, representing more than six percent of the total number of students in public schools across the country. (NAPCS, 2015). As schools of choice, charters offer a market approach to education that contends that schools, forced to compete for students, will be motivated to differentiate themselves in new ways and to maximize academic quality to attract and retain students (Chubb & Moe, 1990; Friedman, 1955; Hoxby, 2001; Levin, 2002). As decentralized organizations, charters are also expected to be more responsive to local needs,[1] more accountable to the public, and more efficient with their resources (Brown, 1990; Finn et al., 2000; Hill et al., 1997).

The extent to which charter schools fulfill these expectations, and the role competition plays in charter school decision-making, is a source of debate, particularly as it relates to school resource allocation. Critics and supporters make varying claims regarding the behavior of charter schools as compared to traditional public schools (TPS's), the cost advantage or disadvantage that charter schools purportedly face, and the spending patterns that emerge within each type of school (Arsen & Ni, 2012a, 2012b; Baker et al., 2012; Baker & Miron, 2015; Bettinger, 2005;

[1] Levin (2001) notes that the private goals of parent consumers may not always be consistent with the societal goals of providing a common educational experience to all students.

Bohte, 2004; Booker, 2008; Carr & Ritter, 2007; Hanushek & Rivkin, 2003; Holmes et al., 2003; Imberman, 2007; Miron et al., 2011; Ni, 2009; Sass, 2006). Much of the existing research examines the response to competition by comparing overall trends in TPS and charters, often comparing the behavior of schools operating in different geographic areas, rather than within a market where schools in the sample are directly competing with each other for students (Arsen & Ni, 2012; Hoxby, 2003; Miron & Nelson, 2002; Miron & Usrchel, 2010). By comparing schools that are not operating within the same marketplace, these studies are limited in their ability to provide insights into how TPS and charters allocate resources differently when subject to direct competition with each other. This research will examine whether and how traditional public schools and charter schools allocate resources differently within a single highly competitive educational marketplace, using New Orleans as a critical case.

The school system in New Orleans represents a unique opportunity for examining market forces in education. Orleans Parish now relies almost completely on decentralized management of schools, rather than the traditional district model of school management. In 2014-15, 76 of 83 public schools were charter schools. Only 6 schools were managed by the Orleans Parish School Board[2] (LDE, 2015a). In addition, 100% of schools in New Orleans now compete with each other for students and for the funding that accompanies them. The traditional, residence-based system of school assignment has been replaced with an enrollment system based entirely on individual family and student choice. This unique combination of

[2] One additional school, the New Orleans Center for Creative Arts (NOCCA), reports directly to the Louisiana Legislature as an independent public school.

choice and decentralized management provides an important opportunity for examining how competition for students might impact school behavior. The purpose of this paper is to identify patterns that may exist as public schools, both TPS and charter, allocate resources to compete within the educational marketplace in New Orleans.

Context of the Study

Prior to Hurricane Katrina, the New Orleans public school system resembled a typical urban school district. Most students attended the neighborhood school to which they were assigned, and parents in New Orleans had little opportunity to choose the public school their children attended. One exception to this practice was magnet schools, which offered alternatives to the traditional neighborhood-zoned public school on a selective basis. Seven charter schools also existed, operating under the authorization of Louisiana's Board of Elementary and Secondary Education (BESE). Two charter schools contracted directly with BESE, and five were under the jurisdiction of the Recovery School District (RSD), a state-run entity created in 2003 to reconstitute failing schools. All non-charter public schools in New Orleans, with the exception of the New Orleans Center for Creative Arts, were under management of the Orleans Parish School Board (OPSB). The system of public schools that has emerged post-Katrina looks dramatically different from the public system of schools that preceded it (LDE, 2015a; Miron et al., 2015; Recovery School District, 2015; Sims & Rossmeir, 2015).

In November 2005, the Louisiana Legislature passed 'Act 35', which expanded the RSD's ability to takeover schools. All but three of the 15 Orleans Parish legislators voted against the amendment, but the law passed (Louisiana Legislature, 2005). The legislation resulted in 107 schools in New Orleans being placed under the control of the RSD, bringing the total number of schools under RSD control to 112. Only 16 schools were left under the control of OPSB. Lacking adequate resources to operate all 16 schools, OPSB decentralized operation of 12 schools to non-profit charter school boards. Only four schools remained open and under the direct oversight of the local school board (Sims & Rossmeir, 2015).

Beginning in the 2006 – 07 academic year, the RSD began decentralizing management of the New Orleans schools under its control to private charter school boards (Miron et al., 2015; Sims & Rossmeir, 2015). The OPSB also opened two new traditional public schools, and granted new charters to several other schools. By 2014-15, over 80 public schools were operating in New Orleans, serving nearly 44,000 students in Orleans Parish. But, in a dramatic shift from the pre-Katrina, centralized district model, over 90% of those schools were charter schools, representing over 40 different charter operators, many of whom operate multiple school sites as part of larger charter management organizations. New Orleans had become a school system in which an overwhelming majority of public school students were being educated in schools outside the direct control of a centralized local school district (Sims & Rossmeier, 2015).

New Orleans has also changed how students enroll in public schools. Neighborhood catchment zones, the traditional form of school assignment based on

residence, have been replaced by a choice system in which, with few exceptions, students may attend any public school in the city, regardless of its location.[3] All public schools, whether locally or state controlled, traditional or charter, now compete with each other for students and resources.

The extensive changes to the public school system in New Orleans have created one of the most diversified educational marketplaces in the United States. Non-network charter schools compete with charter schools operated by charter management networks, and all charter schools compete with a small sector of traditional public schools. These changes have important implications for testing theories on how choice and competition impact behavior on both the supply side and demand side of the marketplace. Parents and students, as buyers in the educational marketplace, must actively choose from the available supply of schools within the City. Schools, as service providers, must compete for those students within an open enrollment system that no longer guarantees enrollment in a particular school based on geography. Schools may seek to differentiate themselves through a variety of mechanisms, including by creating unique academic programming for students and families, by connecting to specific neighborhood communities, or by providing students with services that go beyond formal academics, such as mental health services, afterschool programming, athletics, or other programs. By examining the system of schools in New Orleans, this study aims

[3] Five selective admission schools still exist in the city, which require students to meet specific academic or language proficiency standards to enroll. Most schools, however, are open enrollment. Beginning in 2012-13, schools had the option to request priority admission for students based on attendance zones (up to 50% of seats can be reserved for students living within a school's zone). Students are not, however, required to attend a particular "neighborhood school" based on residence.

to better understand the impact of competition and choice on how schools allocate their resources toward different priorities as they seek to attract and keep students in the educational marketplace.

Problem Statement

By introducing decentralized management and school choice reforms into the public school system in New Orleans, local and state policymakers aim to bring about widespread school improvement through competition. Specifically, one objective of Louisiana's charter school law is to "provide competition within the public school system in order to stimulate continued improvement in all public schools" (28 La. Admin. Code, Bulletin 126). Some data suggest that system-wide academic achievement in New Orleans has improved since 2005. In their review of public school performance since Katrina, Sims and Rossmeier (2015) report that the number of public school students considered on grade level, based on state standardized test performance, has increased since 2005. The number of schools considered failing, based on Louisiana's School Performance Score (SPS), has also dropped since 2005. While the authors acknowledge the difficulty of comparing test results over time, their results suggest that the achievement gains made by students in New Orleans have outpaced the average gains made by Louisiana students in general over the same time period.

Harris and Larsen (2015) also suggest that post-Katrina reforms have improved academic outcomes for students. "Using outcomes before and after the hurricane and reforms in New Orleans and a matched comparison group that

experienced hurricane damage but not the school reforms, [the authors find] large cumulative effects on achievement of 0.2 – 0.4 standard deviations" (p. 1).

Evidence suggesting that academic outcomes have improved in New Orleans is consistent with claims that market-based reforms exert a positive influence on student and school performance (Bohte, 2004; Booker, 2008; Hanushek & Rivkin, 2003; Holmes et al., 2003; Sass, 2006). Other research, however, suggests that competition may not always have a positive effect on achievement (Arsen & Ni, 2012; Bettinger, 2005; Bifulco & Ladd, 2006; Buddin & Zimmer, 2009; Carr & Ritter, 2007; Imberman, 2007; Ni, 2009). Jabbar (2015) acknowledges these mixed findings, noting "[a]lthough existing research has examined *whether* competition improves student achievement, it is also important to examine *how* that might occur and what the consequences of such policies are" (p. 638). School budgetary data from New Orleans provide us with an opportunity to examine how schools might be changing their behavior in the presence of intense competition. More specifically, examining resource allocation patterns across a variety of student and school-level indicators, and across a wide variety of school types, has important implications for policy makers to understand how school resources might be connected to a system-wide increase in student achievement, and how the allocation of those resources within particular types of schools might be influenced by the competition.

Resource allocation patterns in New Orleans can be examined within the context of market competition and choice. Much of the existing research examining resource allocation in the context of market reforms is focused on identifying how charter schools spend differently than traditional public schools (Bifulco & Ladd,

2006; Holmes et al., 2003; Miron & Urschel, 2010; Nelson et al., 2000; Ni, 2009). Often, however, these studies examine spending differences between schools and districts of varying size, and inside markets with varying levels of competition (Arsen & Ni, 2012a, 2012b; Belfield & Levin, 2002; Carpenter, 2013). In some cases, schools and districts in a sample may not even be located in the same geographic area, thereby comparing schools and districts that do not compete for the same students within a local market (Arsen & Ni, 2012a; Baker et al., 2012; Miron & Urschel, 2010; Nelson et al., 2000; Ni, 2009). Studies also use varying measures of competition to define the intensity of competition, relying on the market share of students within a sample (Arsen & Ni, 2012; Hoxby, 2003; Imberman, 2007; Winters, 2012), density of schools in an area (Bifulco & Ladd, 2006; Marlow, 1997) or the proximity of nearby charter schools (Bettinger, 2005; Holmes et al., 2003; Sass, 2005). Importantly, "[d]ifferent measures of competition measure different subjects; market share measures may be appropriate for measuring the level of competition felt by a public school district […] whereas proximity to a given school, or density around a given school, is more appropriate for measuring the effects facing an individual school" (Linick, 2014, p. 9).

Competition between schools exists not only between charter schools and TPS, but also between schools within the charter school sector that are managed differently. In New Orleans, over half of the charter schools operate as part of charter management organizations (CMO's). This "recentralization" of school management (see Bulkley, 2002; Huerta & Zuckerman, 2009) has the potential to create decentralized organizations that employ a combination of the site-based

decision-making inherent in the charter movement (Hannaway, 1993; Malen, Ogawa, & Kranz, 1990; Wohlstetter et al., 1995) with potential advantages of centralized management, such as opportunities for collaboration across schools, cost reduction through economies of scale, and replication of successful strategies (Farrell et al., 2012; Hendrie, 2005; Miron, 2010), By examining differences in spending behavior not only between TPS and charters, but also between how network charters allocate resources as compared to non-network charters, this study has important implications for understanding how school management structures may impact resource allocation.

In New Orleans, regardless of how it is measured, the competition between TPS and charter schools, and within the charter sector itself, is intense. In 2014-15, charter schools in New Orleans enrolled 93.0% of all students. 76 of 83 public schools were charter schools. The only residency requirement for enrollment in any public school is the parish boundary, giving all students in Orleans Parish access to the full choice set of available schools. Within the charter sector, 12 charter networks operate 45 different schools, all of which compete for students with 31 non-network charter schools, 6 TPS, and one independent public school (NOCCA). The adoption of district-wide school choice policies and decentralized management structures after Katrina make New Orleans a critical case for examining how schools allocate resources within a single, highly competitive school system.

The purpose of this quantitative case study is to explore school-level resource allocation within the New Orleans public school marketplace. Specifically, the study aims to identify, describe, and understand whether and how school-level

resource allocation patterns differ across schools of different governance and management structures, and how those patterns might be influenced by market competition. Assessing these patterns in the context of market-based reforms will require answering the following central question:

- What do spending patterns in New Orleans' public schools suggest about the impact of competition and choice on school resource allocation?

A set of sub-questions follows:

- How do traditional public schools and charter schools allocate resources toward different priorities?

- Within the charter school sector, how do stand-alone charters allocate resources differently than schools run by charter management organizations?

- What similarities or differences in school spending patterns can be discerned from a comparative analysis of schools operating within a highly competitive marketplace? What do the patterns that emerge indicate about how schools seek differentiate themselves?

The answers to these questions will be helpful for policymakers who are interested in understanding how school choice and market competition might initiate changes in the way schools allocate resources. The study will be informed by literature on school resource allocation, school choice, and market competition in schools.

II – LITERATURE REVIEW

The continued growth of charter schools in the United States presents an increasing level of competition to traditional public schools. A significant body of research exists to examine how public schools are responding to that pressure. This literature review briefly summarizes the theory of action behind competition and choice in school markets and existing research that explores the impact of market reforms on student achievement, followed by a more detailed summary of research that examines the impact of competition on school resource allocation.

Theoretical Foundations of Choice and Competition

School choice advocates argue that implementing choice policies will result in an overall improvement of school performance by introducing competition to traditional public schools (Friedman, 1962). In this view, traditional public school districts operate within a monopolistic market and, as the sole provider of public education, have no incentive to improve the quality or the efficiency of the education they provide (Chubb & Moe, 1990). In addition, as elected representatives, school boards are vulnerable to the demands of many different constituent groups with many different interests and goals for public education, which may distract from the simple goal of improving schools (Chubb & Moe, 1990; Kolderie, 1990; Nathan, 1996).

Advocates suggest that school choice reforms will free traditional public schools from both bureaucracy and monopoly by providing a market incentive to improve and to become more efficient. Public schools, forced to compete for students and funding, are expected to improve their overall performance and efficiency, in order to attract more students. Schools that continue to perform poorly will see enrollments drop, will lose funding, and will ultimately close due to lack of demand. By this view, competition will improve schools by encouraging them to eliminate wasteful programs and focusing their resources more intensively on instruction and programs that more directly impact student outcomes (Finn, Manno & Vanourek, 2000; Hill et al., 1997).

Competition and School Performance

There is a substantial body of research on the impact of choice and competition on educational outcomes in traditional public schools and districts, and the findings are mixed. These studies, which examine a wide variety of educational marketplaces, suggest that the impact of competition on academic outcomes is positive (Bohte, 2004; Booker, 2008; Hanushek & Rivkin, 2003; Holmes et al., 2003; Sass, 2006), negative (Arsen & Ni, 2012; Bettinger, 2005; Carr & Ritter, 2007; Imberman, 2007; Ni, 2009), or insignificant (Bifulco & Ladd, 2006; Buddin & Zimmer, 2009; Urquiola, 2016). These inconsistent results suggest that more work is needed to fully understand the impact of competition on school outcomes.

In their comprehensive review of research on educational markets in the United States, Belfield and Levin (2002) examined the correlation between

competition and a wide variety of school outcomes (including academic performance, educational attainment, expenditures, and efficiency). Studies included in their review looked at educational markets across a wide variety of areas, with varying measures of competition, including the Herfindahl Index, private school enrollment, market density (number of competitors within an area), and proximity (distance to nearest competitor). Evidence on the effects of greater competition on academic outcomes was mixed, but was "generally consistent in suggesting modest gains in achievement as a result of competition" (p. 286).

Belfield and Levin also reviewed links between competition and educational attainment, educational expenditures, and educational efficiency. Their review suggested " [t]here were benefits from higher competition, but the substantive effects – across the set of outcomes and based on an increase in competition of one standard deviation – appeared to be modest" (p. 294).

While their results suggest that competition may have an important role to play in education policy, Belfield and Levin stress that fully understanding the impact of competition must be situated within a broader policy context. Important factors to consider include the sustained impact of competition over time, and the level of market concentration below which the effects of competition may not be detectable (p. 297).

Competition and Resource Allocation

Improving school efficiency does not necessarily require schools to improve their academic performance. Linick (2014) notes "[d]oing more with less, is not

required to improve efficiency, in fact, doing the same with less, or doing less with a lot less, can all represent increased efficiency" (p. 9). Thus, examining the ways in which schools deploy their resources can provide important insights into evaluating school efficiency. Research has begun to examine the impact of competition on educational expenditures in more detail by examining school spending across different functional categories. By comparing the spending patterns of TPS's with those of charter schools, these studies seek to identify how different schools might respond differently to competitive markets.

Miron and Nelson (2002) use statewide expenditure data from 1995-96 through 1999-2000 to compare the spending patterns of charter schools with non-charter public schools in Michigan. Because EMO's make up such a large portion of charter schools within the state, the three largest EMO's are also included as separate points for comparison.

Statewide, the authors find that charter schools spend a smaller proportion of overall spending on instruction, particularly on added needs programs. The three EMO's examined devoted an even smaller proportion of spending to instruction than the average for all charter schools. On average, over the five years studied, the proportion of charter school spending allocated towards instruction declined by over 7% (Miron & Nelson, 2002).

In addition to their statewide comparison, the authors also examined a smaller sample that compared spending in four case schools directly with the four corresponding host districts. The authors again find that charter schools, particularly EMO's, spend a smaller share of their resources on instruction. They

also appear to spend a larger proportion on administration, when compared to their home districts. The authors also examined the purported cost advantages or disadvantages of the case study schools over their host districts, based on per-student expenditure differences. The authors conclude that charters enjoy a variety of cost advantages over their host districts by focusing services on less costly students. Importantly, however, no effort is made to statistically control for characteristics of each school or the students who attend the schools and districts.

By distinguishing between independent charters and EMO's, this study draws important distinctions between resource allocation in decentralized charter schools, and charters that have been "recentralized" under management organizations. Comparing charter schools directly to host districts also acknowledges the importance of comparing schools that directly compete with each other for students. However, the use of raw spending data from charter schools and districts, without using statistical analysis to control for student and school characteristics, limits the overall usefulness of the findings for use in broader policy discussions.

Miron and Urschel (2010) use national data to compare expenditures across a wide range of public school districts and charter schools, giving specific attention to charters managed by educational management organizations (EMOs). Using 2006-07 data, they find that in most states, charter schools not only spend less money per pupil than traditional public school districts, but that they also spend less on instruction, student support, and teacher salaries. Charters also appear to spend more on administration, both as a percentage of overall spending as well as for administrative salaries.

Several limitations exist with respect to the data and methods used in this study. First, the sample draws from incomplete data, inasmuch as school-level data was not available for more than half of the charter schools in the federal data set selected for the study. In addition, comparison groups were drawn across different states, with comparison groups including data from some states in analysis, but not in others. The lack of detail on site-specific school data, including inconsistent measures of policy conditions, makes it difficult to generalize these findings. For example, competition is not quantified in any particular way. Rather, it is simply recognized as existing, or not, without discussion of the magnitude of competition within a particular area.

Finally, the use of raw finance data does not account for the wide range of other variables that might impact spending. The authors suggest the need for greater overall precision in creating comparison groups to gain a better understanding of the differences in how TPS and charter schools allocate resources. This study, situated within a single competitive market, will provide some of that precision.

Arsen and Ni (2012a) use statewide data from school districts in Michigan to examine spending in school districts in which TPS's experience competition from both charter schools and interdistrict choice. Using data from 1994 to 2006, the authors use a fixed effect model to estimate the effect of charter competition on school resource allocation over time. Dependent variables include the percentage of total expenditures for a variety of areas, including basic instruction, added-needs instruction, instructional salaries, business and administration, and operations and

maintenance. Independent variables in the model control for structural characteristics, student characteristics, and the measures of competition experienced by schools.

The authors find that TPS districts show little sign of responding to charter competition, whether by shifting resources to basic instructional purposes, to added-needs programs, to instructional salaries, or by reducing class size. Nor does charter competition appear to impact TPS spending on support service functions. Higher levels of competition do appear to be connected with declining fund balances in TPS districts, which is consistent with basic mechanism of choice policies in which funding follows the student when they exit a district.

The authors also explored how TPS respond to changing levels of competition by examining resource allocation patterns over time. Comparison groups were created by categorizing the amount of competition in districts as none, low (less than 6% of district residents in charter schools), or threatening (greater than 6% of resident students in charter schools). Districts were further categorized as 'stabilized', for districts seeing no increase in competition over the 12 year period, or 'increasing' for districts that saw the share of students in charters increase over that time.

While some spending differences existed in districts experiencing threatening levels of competition, the differences existed even before the districts experienced high levels of competition, and appeared stable over time. Because the differences preceded any significant competition from charter schools, the authors suggest these trends may be related to the specific needs of students in those districts,

rather than from a specific response to competition. In summary, the authors suggest that resource allocation in districts experiencing competition "was essentially indistinguishable from that in districts with no competition both before and after they themselves confronted competition" (p. 30).

The authors conclude by suggesting that more detailed school-level data might be helpful in identifying TPS responses to charter competition. This study will address those suggestions by including school-level demographics and other resource indicators in its resource allocation model.

Arsen and Ni (2012b) build on their previous work in Michigan by using 2007-08 data to directly compare the spending patterns of charter schools and TPS districts to identify any differences that might exist within the state. The authors begin with a straightforward comparison of raw data from schools in the sample. They find that, despite receiving similar funding levels, charter schools and TPS districts exhibit large differences in how they spend allocate resources. On average, charter schools spend over $1,600 less per pupil on instruction, and around $400 less on instructional support than districts statewide. Michigan charters also appear to allocate more resources toward administration, spending about $900 more per pupil than all districts. As a percentage of spending, Michigan districts spend an average of less than 10 percent on administration, compared to charter spending on administration of around 23 percent. Overall spending differences are also quite stark, with charter schools spend nearly $1,000 per pupil less overall, despite similar levels of funding.

The authors also use OLS regression models to identify possible determinants of resource allocation differences. The basic model examines a set of instructional and administrative spending categories while controlling for a variety of factors representing both school-level and student-level characteristics. The authors find that charter schools in Michigan spend $774 more per-pupil on administration than TPS's, with around two-thirds of this higher spending coming in the area of general administration and business services. Several factors appear to account for differences among charter schools, including the age of the school. Estimated administrative expenses decline the longer a school remains open. Other significant factors include grade configuration (secondary charters spend around $120 less overall on administration than elementary charters) and EMO status (schools managed by EMO's spend over $300 per pupil more than non-EMO charters). These findings are consistent for the model that estimates dependent variables as a percentage of overall spending. Importantly, the model also suggests that increased school size has a small, but significant impact by reducing administrative spending. This finding suggests that some economies of scale do exist for administrative expenses "through the traditional central office administrative functions […] , rather than in school-level administration" (p. 11).

Overall instructional expenditures made by charter schools are estimated to be over $1,140 less than TPS's, holding other factors constant. The differences appear even greater when including EMO status in the model, which estimates a further reduction in instructional spending of nearly $429 compared to non-EMO charters.

The overall model for EMO's suggests that nearly 75% of the reduced instructional spending ends up as an administrative outlay.[1]

The authors conclude by suggesting that a more detailed examination of instructional indicators, including personnel costs, could help more clearly identify specific areas where charter and TPS spending is different.

Two factors may limit the usefulness of these findings in terms of their application to broader school choice policies. First, for-profit nature of most charter schools in the study may lead them to operate in ways that are not easily extended to other policy settings, where most schools are operated by non-profits. Also worth noting is the absence of any measure of competition within the comparison groups and within the models. Important takeaways from this study include the impact of grade configuration, school age, school size, and centralized (EMO) management on school spending. These indicators will be included in this research to help strengthen the resource allocation model.

Carpenter (2013) compares resource allocation patterns using statewide, school-level data for charter and non-charter schools in Texas. Per-pupil expenditures using raw data indicate that charters and non-charters were almost identical in terms of total expenditures. Minor spending differences emerged within allocation categories, including more spending by non-charters in areas of instruction, instructional services, and support services, with larger differences

[1]Overall, the results from Arsen & Ni (2012b) suggest that charters are spending more on administration and less on instruction. Based on their macro level analysis of instructional expenditures, the authors are unable to determine specific areas that may be seeing lower allocations than others. Based on the traditionally large share of expenditures related to personnel costs, they suggest that much of the difference may lie there.

appearing in administration, where charters spent around 50% more on administration.

A more sophisticated analysis was performed using a regression model to analyze categories as a percentage of total spending. After controlling for a variety of student and school covariates, Carpenter found that charters schools spend around two percent less on instruction, instructional services, and support services than non-charters, all of which are statistically significant differences.[2]

The ability to apply Carpenter's findings to a broader policy context may be limited as they pertain to the impact of competition and choice on resource allocation. First, because over half of all charter schools in the sample are managed by CMOs, the patterns identified may not accurately represent the behavior of independent, non-network charter schools. Second, because comparisons are made using data from across the state, rather than from within a single metropolitan area, or even a single district, there is no direct competition between schools included in the study. It is simply assumed that charter and non-charter schools exert competition on each other, with no discussion of how that might take place between schools in different locales. The models developed in this research will address these possible shortcomings by distinguishing between network and non-network charter schools, and by examining schools within a single competitive educational market.

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[2] Charter schools also spent more on school leadership and "other costs". All of these differences, with the exception of school leadership expenditures, were statistically significant after controlling for student and school covariates. "Thus, it appears the flexibility afforded charter schools results in differences in expenditure allocation patterns but not necessarily in a way consistent with choice theory" (p. 315).

The studies discussed above provide several examples of how charter schools and TPS might behave differently in response to market competition. However, they also highlight the need for future research. The framework below outlines how this research will examine resource allocation patterns in schools as they compete for students.

Conceptual Frame for Analysis

Reforms to improve K-12 schools through the creation of an educational marketplace are built on the premise that, by providing increased educational options to parents and students, schools will be compelled to compete with each other for students and the funding that accompanies them. This competitive process is expected improve school outcomes by altering the behavior of both schools and students and it relies on the principle that "market forces matter – that is, that people may alter their behavior in response to the pressures and incentives that the market generates" (Hoxby, 2003, p. 4). The following framework reviews the accounting systems used to track educational spending, examines the structural elements of an educational marketplace, identifies different ways that competition between schools might be measured, and examines ways that schools might respond to competition.

Account Classification in Educational Revenues and Expenditures

Accurately tracking educational spending requires a system of accounting that classifies the financial activities undertaken by schools. The National Center for

Educational Statistics (NCES) publishes federal guidelines for schools in the *Financial Accounting for State and Local School Systems.* The handbook represents "a national set of standards and guidance for school system accounting" (Allison, 2015, p. 1) and provides schools and school systems with a comprehensive and uniform system with which to report financial data.

The *Louisiana Accounting & Uniform Governmental Handbook* (LAUGH) establishes a "comprehensive and compatible sets of standardized terminology for use in education management and reporting" for the State of Louisiana, and conforms to NCES guidelines. Object codes are used to track school and district level expenditures across nine major categories: Salaries; Employee Benefits; Purchased Professional and Technical Services; Purchased Property Services, Other Purchased Services; Supplies; Property; Other Objects; and Other Uses of Funds. Function codes further categorize expenses across five areas, according to the activity for which each expenditure is made: Instruction; Support Services (including administrative, technical, and logistical support); Operation of Non-Instructional Services; Facilities Acquisition and Construction Services; and Other Uses.

In general, schools have wide latitude on how to categorize expenditures within the bureaucratic categories created by school accounting systems. Because most funds received are unrestricted, the school uses its judgment as to how to accurately account for spending.[3] Yet, the uniformity of formal school accounting systems across schools, both charter and traditional, and across districts, is vital for

[3] Some funds are restricted for use only within certain categories, based on their source. Some federal funds, for example, must be spent on at-risk populations, or students with special needs. Coding of restricted funds within required categories, however, is also still up to the individual school. Funds might be used for direct instruction, for support programs, for personnel.

accurately evaluating and comparing spending in schools. Baker et al. (2012) note research on spending in "charter schools as compared to their traditional public school counterparts is plagued by at least two persistent and major shortcomings" (p. 1). First, accurate analysis relies on complete and consistent coding at both the school and district level across all areas of resource allocation. If organizations categorize spending differently, resource allocation comparisons can be imprecise. This includes the fact that "in many cases, host districts of charters maintain the obligation to finance certain operational costs of charters, including provision of [facilities space], food, transportation and special education services" (Baker et al., 2012, p. 1). Similar problems can arise when charter management organizations assume some site level costs for individual schools. Accurate financial analyses may suffer from these inconsistencies. Second, charter schools and CMO's may simply operate differently than traditional districts and schools based on the students they serve and the programs they provide. This may be particularly true for schools providing niche programs to serve particular students, or schools providing innovative programs to provide and support their instructional practices. Using broad spending categories to analyze school spending, rather than more specific, program level data, make detailed comparisons of how schools allocate resources difficult. Spending on capital infrastructure and other operating costs can further complicate school-level comparisons.

Another possible difficulty in accurately comparing school expenditures arises when charter schools organize themselves as multiple, related entities. When a charter management organization exists, services and other school-level resources

may be provided to school sites but allocated to the centralized organization. Examples include professional development for faculty and staff, curriculum design, operational support. In such cases, centralized spending data may not be attributed to the specific site that benefits from those resources, or may be allocated to school sites using organizational averages rather than accounting for the actual resources allocated to each site. In the case of some charter management organizations, support may come not only from the local CMO, but also from the national organization (Baker & Miron, 2015; Miron et al., 2011) . The internal accounting practices of each level of the organization may mean that resources are not always accounted for at the school-level. Central management organizations (and individual schools) may also work with external partners who provide equipment, personnel, and other in-kind services that are not easily accounted for by the reporting processes in place for charter schools. School-based health clinics, for example, are often managed by outside organizations and provided through partnerships that may not show up in financial records.

Charter schools may also benefit from resources provided by outside organizations. Common examples include parent organizations, but a more formal example includes the creation of a separate and distinct non-profit supporting organization (Miron et al., 2011; Reckhow, 2010). The Internal Revenue Service defines a supporting organization as one that is "organized exclusively for the benefit of, to perform the functions of, or to carry out the purposes of" (IRS, 2018) another public non-profit. In addition to making grants to the supported organization, the supporting organization can generally make grants and provide

services to the "individual members of the charitable class benefited by its supported organization" (IRS, 2018). If schools do not report the financial expenditures made by their supporting organizations, any research on school-level spending will be incomplete and perhaps misleading as to the impact of the marketplace on equity and efficiency.

Similar challenges exist when looking at school revenues. Baker and Miron (2015) identify two different ways that public dollars flow into charter schools. First, charter schools may receive direct funding from state education agencies. Under this arrangement, charter schools are financially independent of the local school district. A second funding arrangement provides funding directly to the school district, rather than the charter school, with the district serving as a pass-through agency for funding. "In the latter case, it is not uncommon for the local public school district to retain certain financial responsibilities, such as the provision of transportation services, or costs associated with special education. Districts may also be responsible for providing curricular materials, enrollment management, or even access to facilities" (p. 15). In such cases, charter schools' revenues will appear lower because funding is are attributed to the local district, making accurate revenue comparisons more difficult.

The flow of private dollars into schools also complicates the revenue side of school funding. "Large foundations often act as 'institutional entrepreneurs' or 'field builders', by awarding grants to certain types of organizations" (Reckhow, 2010, p. 279). These dollars can be difficult to track, particularly when they are provided to school support organizations (who provide programming but not direct dollars), to

district organizations (rather than directly to schools), or to charter management organizations, who often maintain separate regional and national supporting organizations that may not be subject to the same reporting requirements as the local schools themselves.

Baker et al. (2015) suggest two steps toward conducting better analysis of school revenues and spending, whether at the school or district level. First, better precision must be used to determine how and where schools and districts are spending. Apples to apples comparisons are simply not possible if expenditures are being made in certain schools and not in others, or if those costs are being allocated to district offices or charter management organizations, instead of to the school itself. Second, the costs of specific programs and services must be broken into their parts, rather than being treated as average expenditures across broad categories like instruction and support. Without that level of detail, "one cannot accurately compare the relative efficiency in producing student outcomes of one set of schools to another" (p. 32).

Market Structure

To define structure on the supply side of an educational marketplace, Belfield and Levin (2002) suggest, "an education market exists where parents [and students] have a set of feasible alternatives" (p. 281). Based on this definition, a public monopoly exists in communities in which a single public school or district is the only alternative (Chubb & Moe, 1990). Markets, on the other hand, exist when public schools compete with alternatives such as private tuition-based schools, or with

alternatives inside the public school system, such as magnet schools and charter schools. The "feasible choice set" (Belfield & Levin, 2002, p. 281) of alternatives may also include schools in neighboring catchment zones, or in neighboring school districts, depending on local policy (Hoxby, 1998). Accessing neighboring schools or neighboring district alternatives usually requires families to "vote with their feet". This "Tiebout-type choice", is exercised when a family selects a public school option by choosing to live in a particular neighborhood (Tiebout, 1956). In doing so, families take advantage of school catchment zones, which assign students to a particular school based on residence (Hoxby, 2001).

Choice alone is not enough to create competition within an educational marketplace. Parents must also be able to gain access to those choice options. Unfortunately, barriers usually exist that prevent some of these alternatives from being considered. Low-income families, for example, may be unable to pay private school tuition. Some students may not qualify for magnet schools, which enroll only the highest performing students. Charter schools may be over-enrolled, requiring students to participate in a lottery to gain a seat. Families may also be unable to gain access to some neighborhood schools because the costs of moving into a particular neighborhood are too high (Belfield & Levin, 2002). In addition to the cost of a residence being a limiting factor for some families' ability to choose a school by moving into a neighborhood, Hoxby (2000) suggests that choice can also be constrained by job location, leading some families' to consider only those schools within a reasonable commute. Acknowledging these barriers, MacLeod and Urquiola (2012) note, "there is evidence that Tiebout choice can lead to stratification" (p. 9).

Structures that can help overcome these challenges to exercising choice include scholarships, which provide low-income students with tuition vouchers to attend a private school, and free student transportation. Transportation options can also help families expand choice, regardless of where they live, by eliminating the need for parents to bring their children to and from school each day, or to pay an outside provider for this service.

Another key structural element that impacts competition within a choice system is the school funding mechanism. Most states have a district-based finance system in which school districts receive funding through local tax efforts, and from state and federal sources. The districts operate schools and allocate resources, rather than money, to schools based on the number of students at each site (Baker, 2003; Odden, 2001). In a choice-based school system, funding follows the student. This shift in school funding structures is a critical component for creating competition between public schools. Districts increasingly face competition for public funds from charter schools, voucher programs, and tuition tax credit programs, each of which divert funds away from the centralized school district (Baker et al., 2012; Baker & Miron, 2015; Levin, 2001). Only by attracting enough students will schools, regardless of their type, receive the funding they need to continue operation. Thus, when funding follows the student, choice strengthens the competitive process.

Measuring Competition

The theoretical link between choice and competition is that parents, by choosing from among available options, can influence what goes on in schools by forcing schools to consider family preferences. Schools, seeking to attract and maintain student enrollments, will be motivated to improve their performance and diversify their offerings in order to better meet the needs of their students (Chubb & Moe, 1990). The degree to which choice creates competition between schools within a market is a subject of debate. Hoxby (2003) suggests, “schools' conduct and performance will depend on the availability of alternative schools, not on whether the parents actually use the alternatives" (p. 11). In other words, an available set of options from which to choose is enough to create competition and to compel schools to respond in particular ways. Alternatively, Linick (2014) argues that competition requires more than just a set of available alternatives. It also requires that schools respond to those alternatives in some way. This definition is consistent with Belfield and Levin (2002), who also suggest “competition as a construct refers both to the existence of multiple education suppliers within the choice set and to how these suppliers behave strategically” (p .281).

Existing research uses several different methods for quantifying the level of competition that exists within an educational marketplace. Holmes et al. (2003) use proximity as a proxy for competition by calculating the distance between a TPS and the nearest charter school (see also Bettinger, 2005 and Sass, 2005). Other studies use the number of charter schools within a particular distance of a TPS to measure the density of charter presence (Bifulco & Ladd, 2006). Hoxby (2003) defines

competition using market share, or the number of students who attend charter schools within a given market, as a proxy for competition (see also Arsen & Ni, 2012; Imberman, 2007). Still other studies account for competition using a combination of both proximity and market share (Buddin & Zimmer, 2005; Misra et al., 2012).

Hoxby (2003) specifically defines a competitive environment as any district in which charter schools enroll at least six percent of the students. Some studies estimate the level of competition experienced by schools by combining this measure of market share with a measure of the duration of charter presence (Arsen, 2007; Arsen & Ni, 2012; Booker et al., 2008).

Still another metric for quantifying the level of competition between schools is the Herfindhal Index (HI), which uses the "market shares of the associated firms within an industry [to] capture the degree of competition in an industry" (Borland & Howsen, 1992, p. 32). Using the HI to quantify competition in educational markets "reflects the market power of public schools in the area and therefore the degree of 'choice' that parents may have" (Barrow & Rouse, 2002, p. 27). The HI can also measure competition between both public and private schools depending on the data included in its calculations.

The formula for calculating the Herfindahl Index within a given educational marketplace is:

$$H = \sum_{i=1}^{N} s_i^2$$

Where H is the Herfindahl Index value, N is the number of schools within a defined marketplace, and s_i is the market share of school i in the marketplace. HI values range from 0, representing full competition, to 1, representing full monopoly. In their 2002 review of studies examining the effects of competition on educational outcomes, Belfield and Levin report "HI values in education markets range from 0.11 to 0.87, with an approximate average for the concentration level at 0.35, [indicating] that education is highly concentrated in comparison with other sectors" (p. 283).[4] Similarly, Barrow and Rouse (2002) consider the threshold for a market to be "somewhat competitive" as HI less than 0.15, with HI above 0.46 being considered "monopolistic" (p. 28).

This study will use the Herfindahl Index to measure the level of competition in the New Orleans school marketplace. One benefit of using HI is that it is a dynamic indicator of competition within an educational marketplace. The value will change over time, reflecting how competition increases or decreases based on the enrollment decisions of families (Hanushek, 2003; Hoxby, 2000).

Educational Market Structure in New Orleans

One goal of this study is to identify patterns in how schools of different types deploy resources in response to competition. To create comparison groups, public

[4] "The Federal Trade Commission, in accordance with in interpretation of the HI, defines (industrial) markets with HI values below 0.1 as unconcentrated, those between 0.1 and 018 as moderately concentrated, and those above 0.18 as concentrated" (Belfield & Levin, 2002, p. 336). Barrow and Rouse (2002) note "school districts, which must exist in all counties, [will] therefore generate markets that are more concentrated than the typical product market" (p. 28).

schools in New Orleans will be categorized according to governance type (public or private) and management structure (centralized or decentralized).

This typology allows for patterns to be identified across several comparison groups. First, schools are divided between public (schools governed by OPSB, the publicly elected local school board) and private (schools controlled by non-profit charter school boards). Schools are further categorized according to management structure, as either centralized or decentralized.

All schools governed by OPSB are operated as "traditional public schools", under the centralized management of New Orleans Public Schools. Within the privately governed charter school sector, both centralized and decentralized management structures exist. Network charter schools operate as part of charter management organizations (CMOs), using a centralized management model. Non-network charters are decentralized, standalone schools operating as individual entities. Figure 2-1 organizes the public schools in New Orleans along dimensions of governance and management structure.

		Management structure	
		Centralized	Decentralized
Governance	Public	Traditional public schools 6 schools	
	Private	Network charter schools 45 schools	Non-network charter schools 31 schools

Figure 2-1. Public School Types in New Orleans (2014 – 2015)

The extent to which different resource allocation patterns exist for schools operating under these various governance and management structures has important implications for understanding how schools respond to competition. Also important for understanding how schools behave in the marketplace is a full understanding of the other reforms that impact how students and families access schools. The Orleans Parish School Board, while it has shifted its role away from the direct operation of schools, still provides some level of coordination and oversight for all public schools. From an enrollment standpoint, OPSB manages the operations of three Family Resource Centers, which provide families with a location to research school options and to utilize the EnrollNOLA system, which uses a centralized database to manage the school admissions process for all public schools in New Orleans, including mid-year transfers. From a governance standpoint, OPSB is shifting to a role as a portfolio manager, with oversight responsibilities over areas such as school opening and closure, performance monitoring, and interventions. "The sets of decisions that come along with portfolio management – planning, accountability, and authorization – lead to the continuous improvement and innovation that will enable the vision that a great public school is available for all children in New Orleans" (OPSB, 2016, p. 15). In Fall 2018, the last of OPSB's traditional public schools will become a charter school. OPSB's will no longer directly operate any public schools. As their role as a portfolio manager continues to develop, accounting for the resources OPSB invests in schools will be important for understanding how and where resources are reaching schools. If those resources are not attributed directly to the school sites they benefit, it will be difficult to

identify school spending patterns and to determine possible causes for spending variations across schools and centralized management organizations.

The Market Metaphor

According to the market metaphor, schools provide a supply of educational options to families and students who, as consumers of education, provide demand for those services. A market dynamic exists when schools compete for students. While the market metaphor is commonly identified as the dominant rationale for school choice, Henig et al. (2005) suggest charter schools can be characterized as either "market-oriented – those operated by for-profit EMOs" (p. 490) or mission-oriented, "those assumed to set a direction more in line with purposive, collective, and philanthropic mission" (p. 489). Within the mission-oriented charter sector, schools are further categorized as being governed by non-profits who are connected to professional educators, a focus on social services, links to community groups, or connections to the business community.

Henig (1994) notes that support for school choice policies is often rooted, not in a belief that market competition will make schools better and more efficient, but rather on an "allegiance to non-market rationales, such as individuality and personal growth, cultural diversity, community empowerment, and the opportunity to shake up lethargic public bureaucracies" (p. 188). To the extent that these values represent varied interests of families and students as private educational consumers, it is logical to expect that individual schools may respond by providing a product that aligns with those private consumer demands rather than responding to

the more public goal of system wide school improvement. Considered through this lens, schools' response to competition is not uniform.

Consumer demand based on individual and personal growth values the principle that school choice will allow educators to provide students with child-centered experiences, often through alternative environments to the traditionally structured classroom. The response of schools, in this view, is to provide the individualized education demanded by the market of students, regardless of how unconventional the programs may appear.

Support for choice grounded in cultural diversity is associated with allowing parents and communities to demand "distinct cultural and intellectual traditions" (Henig, 1994, p. 16) in schools. This type of support for school choice may compel schools to present differing values to different groups of students, and may prevent a single public authority from imposing standards upon consumers who value something other than the majority viewpoint. For example, low-income communities may value a school that focuses on developing job skills rather than providing a college preparatory curriculum.

Similarly, support for school choice grounded in a community-power rationale is based on the principle that schools are best shaped by local interests, and should be shaped by the political beliefs of those who use them, rather than simply being organized around the values of the dominant political class (Henig, 1994). Consumers who demand choices that are grounded in community, for example, may not be interested in attracting students from outside of their own neighborhood boundaries. Nor may neighborhood families appreciate the

possibility that students from other parts of the city can gain admission to the neighborhood school, in fear that those students will displace spots previously reserved for students and families in the surrounding community.

Finally, some supporters may see school choice simply as a political tool that can be used to force reforms upon an institutional educational system that is often resistant to change. Because this type of support for school choice is more closely aligned with the more traditional outcomes of "higher achievement scores, lower dropout rates, basic literacy, [and] technical and scientific skills" (Henig, 1994, p. 19), it is likely to be aligned with both private consumer preferences and also with the more publicly acknowledged goals of local and state educational agencies, whose main priority is to improve the academic performance schools as measured by formal accountability systems.

To the extent that schools allocate resources in order to meet consumers' preferences, the private and public goals of choice may lead to varied behavior on the supply side of schooling, and to a range of spending on different priorities. It is important to note, however, that regardless of private consumer preferences, schools must also meet the regulatory demands of the public system as a whole. More specifically, local and state education authorities can and do require schools to meet specific academic performance targets, whether in the form of test scores, attendance rates, or other measurable outcomes. For traditional public schools, failure to meet regulatory demands may result in school closure, restructuring, or leadership change. Similar requirements exist for charter schools. In New Orleans for example, schools must meet a variety of expectations related to school finances,

organizational structures, and academic quality in order to maintain operations and have their charters renewed (OPSB, 2017).

Baker (2009) notes another important impact of competition on the resource allocation patterns of schools and districts operating within a marketplace. Because organizations compete for the same labor force, both the quantity and quality of teachers, administrators and other staff are commodities for which they must compete. The number of qualified personnel within a market may be limited, and organizations will be forced to compete for those resources, either through higher salaries, higher quality support, or other benefits. "In short, very few school [organizations] are geographically isolated islands that can alter their own spending levels or distributions without consideration for spending and distribution behavior of their neighboring [organizations]" (p. 290).

Responding to Competition With Resources

Belfield and Levin (2002) suggest that both the supply side (schools) and the demand side (parents and students) have the potential to act strategically within the marketplace, and that both are important for understanding how competition might compel schools to differentiate themselves from one another. This study is focused solely on the supply side of the educational marketplace, and uses resource allocation patterns to examine how schools and centralized organizations in New Orleans act strategically within a highly competitive environment. This research follows the approach of Carpenter (2013) who notes "allocation studies describe,

explain, and/or predict resource patterns in the context under study, leaving educational outcomes to the domain of production function studies" (p. 307)

There are a variety of actions that schools might take in response to competition. They may eliminate wasteful programs, enhance student programming, invest in facilities or innovate to improve the quality of instruction in their buildings. School finance data can provide a detailed look at how schools are setting their priorities. When examining school finances, it's important to note that simply spending more on is not a guarantee of better student performance (Hanushek, 1997; Ladd & Hansen, 1999; Odden et al., 2006). Also important is the way in which those resources are used, and the conditions within which each school operates.

As schools in New Orleans continue to compete for resources in the marketplace, it is important to note that resources not only come from attracting students (and the per-pupil revenues that accompany them), but also from other public and private sources. Governmental and private grants may require the adoption of a particular program to receive the funding. Specific reporting and evaluation, and the associated costs, may be required for ongoing funding or, in some cases, funds may only reimbursed if they are spent in accordance with specific guidelines. School-level resources will be available from the Orleans Parish School Board through its role as a portfolio manager. As schools work to compete for these limited resources, fundraising, compliance, and accountability may all impact how they deploy resources within their organizations.

The NCES framework provides schools with a variety of specific school resource indicators that can help identify school priorities. These include per-pupil

expenditures, total enrollment of the school, special academic focus for the school, such as a magnet or alternative program, student income level, and the proportion of students with disabilities. Baker (2003) notes the importance of examining school and district personnel levels, including the number of school and district level administrators, and instructional and instruction-related staff. Miles and Frank (2008) highlight additional indicators that can indicate school priorities, including per-pupil expenditures, teacher education levels, and teacher experience. This study examines school spending priorities across a variety of these expenditure categories and resource indicators.

III – DATA AND METHODOLOGY

This section provides a brief overview of the case study and the quantitative methods I will use to examine resource allocation patterns in New Orleans. First, I will provide rationale for using a case study approach for this research. Second, I will identify the data to be used for the analysis. Next, I describe the context for the study, including a measure of the degree of competition within the New Orleans school marketplace. Next, I provide a description of the model used to estimate differences in school allocation patterns within the New Orleans educational marketplace. Finally, I will share results from preliminary trials of the analysis, and will provide a brief outline of further analysis to be conducted.

Case Study Approach

I will use an embedded case study approach to conduct this research, using the system of public schools in New Orleans as primary unit of analysis. Subunits for the study will be public schools classified according to the governance and management structure of each school, which includes traditional public schools, network charter schools, and non-network charter schools. The wholesale adoption of market-based reforms make this study well situated to understand the presumed links between systemic reforms and school-level spending, a criterion well suited to the case study approach (Yin, 2003). A case study approach is also appropriate for understanding the "how" and "why" of a contemporary phenomenon over which the

investigator has little or no control (Yin, 2003). Case studies are also appropriate for comparing the effects of the institutional environment on subunits within a case (Schneiberg & Clemens, 2006). The subunits in this study will allow me to examine the resource allocation pattern of schools across governance type (public and private) and within the privately governed charter sector (non-network and network schools).

Study Context and Population

This study examines resource allocation patterns across the public school system in New Orleans, Louisiana. Schools included in the study are public schools operating within Orleans Parish. Schools are categorized as traditional public schools (*n*=6), non-network charter schools (*n*=31), or as a network charter schools (*n*=45).[1] Orleans Parish provides a unique environment in which to measure public schools' response to competition within a single educational marketplace. All public schools in Orleans Parish, regardless of governance and management structure, compete with each other for students. Public school students are not assigned to schools based on neighborhood residence. Rather, families must actively apply to a particular school to gain admission.

Because the school district is contiguous with the Orleans Parish boundaries, no other districts are included in the choice set. Private schools in Orleans Parish are also not considered. While competition certainly exists between public and

[1] The New Orleans Center for Creative Arts, a public high school authorized directly by the Louisiana Legislature, is excluded from the sample. NOCCA is as a tuition-free arts training center for high school students throughout New Orleans, and students are admitted through audition only.

private schools within Orleans Parish, and between Orleans Parish and neighboring districts, this sample purposefully examines only public school competition within Orleans Parish.

It is important to note that, while some evidence suggests that schools in New Orleans are improving along traditional academic achievement measures (Sims & Rossmeier, 2015), this study does not attempt to address the efficiency of schools in New Orleans. Rather, it limits its analysis to an examination of how schools spend resources in particular areas. Several factors contributed to this decision. First, the summary-level financial data used for the analysis do not identify how schools spend on specific programs and services. Thus, it is not possible to connect particular outcomes to specific areas of investment. Second, the wide variety of outcomes that schools seek to accomplish may differ across organizations, leading to comparisons that may not accurately describe the cost of achieving a particular goal. An investment in mental health services, for example, while providing important benefits to students and families, may not yield improved academic outcomes. However, the investment may improve school culture, reduce behavioral problems, and increase family involvement at the school. Those changes may, in turn, reduce costs in other areas. By focusing solely on what schools spent, regardless of outcomes, this analysis seeks to identify overall spending trends in schools with the goal of informing future work on the efficiency of particular programs.

Table 3-1 includes descriptive statistics for schools in the study. School and class sizes appear to be similar across schools of different governance types,

although network charter schools appear to serve slightly larger student bodies and classrooms, as compared to non-network charters and TPS. Student demographics show more notable differences. Network charter schools appear to enroll a greater percentage of special education students and a larger percentage of economically disadvantaged students, when compared to TPS and non-network charter schools. Non-network charter schools appear to serve the lowest percentage of these same students compared to both other school types.

Network charter schools appear to employ instructional, administrative and support staff members with the least amount of experience, followed by non-network charters. TPS appear to employ staff with the most experience, across all hiring areas examined.

Table 3-1

Population Descriptive Statistics, Orleans Parish, 2014 – 2015

	Network Charter		Non-network Charter		TPS	
n	45		31		6	
Category	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Average Daily Membership	576.6	242.1	536.1	319.4	530.9	301.6
Students per teacher	16.2	3.6	15.0	2.5	14.7	1.8
% Economic Disadvantage	91.8%	4.6%	75.2%	23.1%	88.4%	5.6%
% in Sp. Education	13.01%	4.07%	9.25%	4.49%	10.17%	3.43%
Average Experience - Teachers	6.2	3.8	9.1	3.9	16.4	2.4
Average Experience - Pupil/Instr Support	6.9	3.8	11.0	6.6	20.4	2.9
Average Experience - School Admin	8.3	5.3	14.1	7.4	13.5	7.2
Avg Experience - All Staff	6.1	2.9	9.1	3.6	14.5	2.3

Table A-1 (see Appendix A) shows the average per-pupil current expenditures[2] for the sample of public schools in New Orleans during the 2014-15 academic year. The table includes data for five groups of schools: all public schools, all traditional public schools, non-network charters, network charters, and all charter schools. Spending averages are shown as Total Current Expenditures and within functional categories for Instructional, Support Services (for Pupils and Instructional Staff), School Administration, Transportation and Central Office Overhead. All categories are expressed as both per-pupil averages and as an average percent of total current expenditures.

Early proponents suggested that charter schools, as decentralized organizations, would shift spending closer to the classrooms and away from administration (Finn et. al, 2000). In New Orleans, the charter sector actually appears to spend $997 less per pupil on instruction. Charters also spend less per pupil on central office overhead ($1,663) and more per pupil on administrative costs ($142) as compared to TPS. Lower instructional spending and higher school administration spending by charters is consistent with other studies that show similar trends (Miron & Nelson, 2002; Miron & Urschel, 2010; Nelson et al., 2003). Administrative spending looks different, however, when examined in combination with central office overhead, a functional area that likely includes some TPS administrative spending that charters schools identify as administrative spending at

[2] NCES defines current expenditures as those made for the day-to-day operation of schools and school districts, including expenditures for staff salaries and benefits, supplies, and purchased services. Expenditures associated with repaying debts and capital outlays (e.g., purchases of land, school construction and repair, and equipment) are excluded from current expenditures. Programs outside the scope of public preschool to grade 12 education, such as community services and adult education, are not included in current expenditures (Johnson et al, 2011).

the school level. TPS spend a combined $3,708 per pupil on school administration and central office overhead, compared to $2,187 per pupil spent by charters. TPS spend $331 less per pupil on Transportation than the charter sector.

In addition to comparing per pupil spending amounts, Arsen and Ni (2012a) and Carpenter (2013) note the importance of comparing categorical spending as a percentage of overall outlays. Charters spend 10.34% of overall expenditures on School Administration, compared to 7.7% by TPS. However, charters spend 17.69% on combined school administration and central office overhead, as compared to TPS spending of 25.13% on the same categories. And, although they spend less *per pupil* on instruction, charters spend a larger share of overall spending on instruction than TPS, with the charter sector spending 50.49% of total current expenditures on Instruction compared to 49.05% of spending on Instruction by TPS. These trends are more consistent with the theory that charter schools, "as decentralized organizations compelled to compete for students, [will] allocate their resources more intensively on instruction" (Arsen & Ni, 2012b, p. 2). This research will create models to compare differences in both per pupil spending and spending as a share of total.

Turning to comparisons within the charter sector, total current expenditures appear similar across school types, with non-network charters spending $12,530 per pupil and network charters spending $12,244. There is greater variation within the charter school spending across expenditure categories. Non-network charters spend more than network charters on Instruction ($290 per pupil), School Administration ($130 per pupil) and Central Office Overhead ($762 pupil), and less

than network charters on Pupil/Instructional Support ($292 per pupil) and Transportation ($330 per pupil). Trends are similar when examined as a percentage of spending. The greater spending by non-network charters on administration and central office overhead suggest that network charters, by centralizing operations at the network level, are enjoying some economies of scale for those functions. Interestingly, the advantages of recentralization within the charter sector do not appear to create efficiencies in Transportation, where non-network charters spend less than network charter schools. This research will distinguish between network and non-network charter schools to help understand any differences that exist within the charter school sector as school management is recentralized to the network level.

Table A-2 (see Appendix A) shows comparisons of staff experience and salaries in New Orleans public schools in 2014-15. Data include average salary and tenure for teachers, support staff, and school administrators within Orleans Parish. On average, TPS tend to employ staff with greater experience compared to the charter sector, regardless of position. And, TPS pay higher average salaries to teachers and support staff. TPS administrators, on the other hand, make an average of $15,654 less than their charter sector counterparts. An examination of data within the charter sector reveals differences between non-network and network charter schools. Non-network schools employ more experienced staff in all categories, and pay teachers and administrators more than network charters. The largest discrepancy in charter sector salaries occurred in administrative areas, where non-network charters paid their administrators an average of $10,605 more

than network charter schools. Non-network charters also paid their administrators $21,933 more than TPS pay their administrators.

Schools do not just compete for students in the New Orleans marketplace. They must also compete for teachers. By examining human resource indicators across school governance types, and across centralized and decentralized management structures, this research will contribute to a greater understanding of how human resources are allocated within a competitive system. Human resource indicators in the model include salary and experience levels for teachers, support staff, and administrators. Other resource indicators will include Total Current Expenditures and categorical expenditure data, including spending on Instruction, Pupil and Teacher Support, School Administration, Transportation, and Central Office Overhead.

Measuring Competition in New Orleans

This study uses the Herfindahl Index (HI) to measure the degree of public school competition within Orleans Parish. The HI measures the level of concentration of school enrollments within a defined area. Values range from 0, representing full competition, to 1, representing full monopoly. The formula for determining the level of concentration is:

$$H = \sum_{i=1}^{N} s_i^2$$

where H is the Herfindahl Index value, N is the number of public schools within Orleans Parish, and s_i is the market share of public school i in the marketplace.

82 public schools are included in the study sample. Market share for each school is calculated using 2014 – 15 Average Daily Membership (ADM) data as reported to the Louisiana Department of Education. Based on these data, the HI value for Orleans Parish public schools is 0.015, representing a relatively high degree competition within the marketplace.[3] Calculating HI with data from all public schools in New Orleans establishes a system-wide measure of competition for the New Orleans public school marketplace, rather than a site level measure of competition based on the proximity or density of competition around specific schools. The high level of competition between public schools in the New Orleans marketplace make it well suited for a single-case design, because the New Orleans educational marketplace represents extreme or unique case (Yin, 2003).

Data Sources

Data for this study come from Louisiana Department of Education databases and publications for public schools operating in New Orleans in the 2014-2015 academic year. These data include school-level financial and demographic data for both charter and non-charter public schools. The data were assembled from reports published by the Louisiana Department of Education and from each school's Annual Financial Report and Annual Charter Review (LDE, 2015d).

[3] As a point of comparison, Belfield & Levin (2002) report an average HI value of 0.35 for the studies they reviewed, with a low of 0.11 and a maximum value of 0.87.

School-level expenditure data in the sample are categorized in accordance with accounting guidelines established in the Louisiana Accounting and Uniform Governmental Handbook (LAUGH), which provides a standardized set of accounting codes for use in education management and reporting. The LAUGH accounting codes are in compliance with National Center for Education Statistics (NCES) reporting requirements.

School-level Structural Characteristics

School type is the primary variable of interest in this analysis. This study categorizes public schools in New Orleans according to governance type (public or private) and management structure (centralized or decentralized). Governance type allows comparisons to be drawn between public (TPS) and private (charter) schools. Management structure allows comparisons to be made between centralized organizations (TPS and network charters[4]) and decentralized organizations (non-network charters). Combined, the dimensions create three distinct categories of schools for comparison: 1) traditional public schools (public/centralized), 2) network charter (private/centralized) and 3) non-network charter (private/decentralized). Because there are three categories of school type when both governance and management structure are considered, dummy variables are used[5] to represent network and non-network charter schools, leaving TPS as the base category. To the extent that trends exist within schools in each group, this

[4] Network charters, for the purposes of this particular comparison, are considered "recentralized" because they rely on a central office to perform a variety of school-level functions.
[5] "When a non-interval variable has G categories, use G-1 dummy variables to represent it" (Lewis-Beck, 1980, p.68).

typology can provide important insights into how various combinations of school governance and management structure might impact resource allocation within a competitive marketplace.

Research indicates that several school and student level variables may be significantly impact how schools allocate resources (Baker, 2003; Odden et al., 2003). These variables are accounted for in the model to control for any influence they may have on resource allocation patterns. School-level covariates that have been shown to impact spending levels include grade configuration, school size, school age, school admissions criteria, and specialized programs (Andrews, Duncombe & Yinger, 2002; Arsen & Ni, 2012a, 2012b; Baker, 2003; Baker et al., 2012; Green, Huerta & Richards, 2007; Miles & Frank, 2008). Student level covariates that impact spending include the percent of students who are economically disadvantaged and the percent of students in special education programs (Harwell, 2018; Monk & Hussain, 2000). School and student level variables provide context about the priorities and the level of need within schools, and therefore can impact the resources allocated across a variety of indicators. To the extent these variables are associated with how different types of schools spend differently, their inclusion in the model can help better isolate the specific spending differences associated with governance and management structures. Table 3-2 summarizes the list of independent variables included in the analysis.

Table 3-2

Independent and Control Variables

Study Variable	Coding
Non-network charter	1 = Charter school managed by non-profit. Single site only.
Network charter	1 = Charter school managed by a Charter Management Organization
Selective admission	1 = School uses standardized test scores or other academic indicators to determine eligibility for enrollment 0 = Open admission school
Alternative setting	1 = School serves students in a non-traditional classroom environment.
Elementary/middle School	1 = School serves PK/K – 8th grade 0 = High school
Combination grade level	1 = Combination Elementary/Middle/High School
School age	Continuous (0, 1, 2, …, n) Age of school, in years, since 2005.
School Performance Score	School quality metric provided by Louisiana Department of Education.
Average Daily Membership	Continuous (0, 1, 2, …, n) Average school enrollment
% Economic Disadvantage	Percent students qualifying for free and reduced price lunch
% Students with Disabilities	Percent students with disabilities

Resource Allocation Indicators

Dependent variables in the model measure a variety of school-level expenditure categories and human resource characteristics. Expenditure data are broken down by functional categories, which can serve as indicators of the core educational strategies and priorities within each school (Allison, 2015; Baker, 2003; Odden et al., 2003). Other dependent variables include the average salary and experience level for a variety of positions within the school, which serve as

indicators of the level of investment schools make in human capital across functional categories (Baker, 2003; Miles & Frank, 2008). Table 3-3 identifies the dependent variables included in the model.

Table 3-3

Dependent Variables

Regression Model Variables	
Study variable	Coding
Total Current Expenditures	Per pupil expenditures for the day-to-day operation of schools, including expenditures for staff salaries and benefits, supplies, and purchased services. Expenditures associated with repaying debts and capital outlays, and expenditures outside the scope of pre-K through 12 public education, are excluded from current expenditures.
Instruction	Activities dealing directly with the interaction between teachers and students. These activities provide students with learning experiences and include Regular Education, Special Education, and Co-Curricular Activities.
Pupil/Instructional Support Services	Pupil Support Services include Attendance and Social Work, Guidance, and Health Services, including speech and occupational therapy and other related services. Instructional Staff Support Services are associated with assisting the instructional staff with the content and process of providing learning experiences for students.
School Administration	Activities concerned with the overall administrative responsibility for a school, including activities performed by the Principal and Assistant Principals.
Central Office Overhead	Activities, other than general administration, which support each of the other instructional and supporting services programs. These activities include planning, research, development, evaluation, information, staff, and administrative technology services.
School Administration and Central Office Overhead	Combined measure of school and central office administrative activities, as outlined in this table.
Transportation	Activities concerned with conveying students to and from school, as provided by State and Federal law. This function includes trips between home and school, and trips to school activities, including field trips.
Instructional percent	Instructional percent of total current expenditures
Support percent	Pupil/Instructional Support percent of total current expenditures
School Administration percent	School Administration percent of total current expenditures
Central Office	Central Office Overhead percent of total current expenditures

Overhead percent	
School Administration and Central Overhead percent	School Administration and Central Overhead as a percent of total current expenditures
Transportation percent	Transportation percent of total current expenditures
Avg. Yrs. Experience - Teachers	Average years experience for classroom instructors.
Avg. Yrs. Experience - Admin	Average years experience for school-level administrators.
Avg. Yrs. Exp. – Pupil Support	Average years experience for pupil support staff.
Avg. Yrs. Experience – All staff	Average years experience for all school staff.
Source: Louisiana Accounting and Uniform Governmental Handbook (2010); National Center for Educational Statistics (2009).	

Model Comparison Groups

I rely on multiple regression models to estimate the differences in allocations between TPS and charter schools, after controlling for student and school-level characteristics. Separate regressions are run for each expenditure function, both as a per pupil amount and as a percentage of total current expenditures, and for each human resource indicator. Separate models are used to draw comparisons between spending in TPS, non-network and network charter schools at the school level, and at the district (LEA) level. Table 3-4 illustrates the models used for this research.

Table 3-4

Resource Allocation Regression Model Comparison Groups

Model	Variables of interest	Comparison groups
Model 1	Governance and management structure (school as unit)	TPS (6) Non-network charter school (31) Network charter school (45)
Model 2	Governance and management structure (district as unit)	Traditional district (1) Charter management organization (12) Non-network charters (31)
Model 3	Management structure (school as unit)	Centralized (and recentralized): TPS and Network charter (51) Decentralized (site-based): Non-network charter (31)
Model 4	Management structure within charter sector (school as unit)	Centralized: CMO (45) Decentralized: Non-network charter (31)

By examining different combinations of school governance and management structures, the models allow the comparison of school and district-level spending patterns within the marketplace from a variety of perspectives.

The basic model for estimating resource allocation levels takes the following form:

$$Y_i = a_0 + b_1X_1 + b_2X_2 + b_3X_3 + \ldots + b_kX_k + e$$

where Y is the dependent variable of interest and X are independent variables representing a variety of school and student characteristics.

Model 1 uses school-level data to compare resource allocation patterns in TPS to those of charter schools. The base category in the model is OPSB schools (public governance; centralized management), with comparisons made to schools within the charter sector (private governance). The charter school comparison group is further broken down into non-network charter schools (decentralized, site-based management) and network charter schools (recentralized management).

Model 2 examines resource allocation patterns in data aggregated to the district, or local education agency (LEA) level. The base category in the model is OPSB (public governance; centralized management), with comparisons made to the charter school sector (private governance). Charter school management structure is again used to distinguish between recentralized charter management organizations (network charters) and decentralized, non-network charter organizations (site-based management). Using LEA as the unit of analysis can help identify resource allocation trends that may not be evident at the school level.

Model 3 uses management structure to compare resource allocation patterns in centrally managed schools (both public TPS and private network charters) with those of decentralized, non-network charter schools. The base category in Model 3 is centrally managed schools, including schools from both OPSB and from charter management organizations, while the comparison group includes site-base managed, non-network charter schools. This model provides insight into whether centralized schools, whether operated by a traditional district or a centralized

charter management organization, appear to spend differently than site-base, non-network charter schools within the marketplace.

Model 4 uses management structure within the charter school sector to compare resource allocation patterns in re-centralized network charter schools with single site, decentralized non-network charters. The base category includes non-network charters, with network charter schools serving as a comparison group. This model identifies how spending patterns differ across the privatized charter sector, based on management structure, by comparing recentralized network charter schools to fully decentralized non-network charter schools.

IV – ANALYSIS AND DISCUSSION

The regression models utilized in this study allow comparisons to be drawn across schools who compete for students within the New Orleans marketplace, but who operate under different governance and management structures. This summary of findings provides a brief description of each model, including the school and student covariates and resource indicator variables included in each model, and summarizes the model results for each regression. Next, overall trends for each resource area are identified, taking all models into account. Finally, larger trends across all resource areas are discussed, with connections made to the conceptual framework of the study.

Model Results

Model One: Comparing Resource Allocation in Individual Public Schools

The regression for estimating resource allocation patterns in TPS, network charter and non-network charter schools takes the following form:

$$Y = a_0 + b_1(\textit{non-network charter}) + b_2(\textit{network charter}) + b_3(\textit{magnet school}) + b_4(\textit{alternative setting}) + b_5(\textit{elementary/middle school}) + b_6(\textit{combo/high school}) + b_7(\textit{school age}) + b_8(\textit{SPS score}) + b_9(\textit{\% economic disadvantage}) + b_{10}(\textit{\% special education}) + b_{11}(\textit{ADM/1000})$$

Where Y is the expenditure category or human resource indicator. School type is dummy coded as non-network charter, or network charter, with TPS

as the base category. Grade level is dummy coded as elementary, or elementary/high school combination, with high school as the reference.

Table A-3 and A-4 (see Appendix A) show mean school-level differences in resource allocation between TPS, network charter schools, and non-network charter schools that persist after controlling for school and student covariates. Table A-3 expresses these differences in terms of average per pupil expenditures, while Table A-4 displays those same differences as a percentage of Total Current Expenditures. Table A-5 (see Appendix A) shows mean differences in salary and experience levels across several human resource indicators.

Regressions were run to estimate per pupil spending on Instruction, Pupil/Instructional Support, School Administration, Transportation, Central Office Overhead, a combined measure of Administration and Central Overhead, and Total Current Expenditure. Model estimates show mean differences in several areas, after controlling for school (size, grade level, and programmatic characteristics) and student covariates (including special needs and at-risk indicators). On average, non-network charters spend $2,503 less per-pupil in total current expenditures compared to TPS, while network charters spend $3,016 less compared to TPS. These differences suggest a possible disparity between the funding levels provided to publicly governed TPS as compared to privately governed charter schools. It follows that differences exist within several expenditure categories.

On average, non-network charters spend less per pupil on instructional services (-$934.57), on support services (-$1076.73), on central office overhead services (-$1400.61), and on administration/overhead (-$1146.29), all differences

that are statistically significant. Network charters show similar statistically significant differences, spending less on instructional services (-$1396.69), support services (-$751.46), central office overhead (-$1775.53) and combined administration/overhead (-$1646.83) than TPS, while spending more on transportation (+$233.79).

Allocation patterns in TPS and charter schools look different when modeling expenditures as a percentage of total spending. Regressions were run to estimate spending on Instruction, Pupil/Instructional Support, School Administration, Transportation, and Central Office Overhead, each expressed as a percent of Total Current Expenditures. There is no significant difference in instructional spending between charter schools and TPS when examined as a proportion of overall current expenditures. Some differences do exist, however, across other expenditure categories.

Non-network charter schools allocate 6% less on support services and 8.5% less on central office overhead, as compared to TPS, while spending 3.5% more on school administration and 2.5% more on transportation. When school administration and overhead are examined as a combined indicator, non-network charter schools spend 4.5% less, suggesting that their overall administrative costs are lower than their TPS counterparts.

Network charter schools spend 11.2% less on central office overhead and 2.8% percent more on transportation, as compared to TPS. Differences in overall administrative spending are smaller, but still significant, when examined as a combination of school administration and central overhead, with network charters

spending 8.3% less on the combined measure. As is the case with non-network charters, differences in Instructional spending between network charters and TPS disappear when measured as a share of the total current expenditures.

Table A-5 (see Appendix A) indicates mean differences across several areas of human resources. Regressions were run to estimate average years of experience for Teachers, Administrators, and Pupil Support in each subgroup, and to estimate average salary for each of those positions.

Overall, non-network charter schools appear to employ less experienced staff than TPS, with overall staff averaging 4.9 fewer years of experience. On average, teachers arrive with 6.9 years less experience, and support staff possess 8.5 years less experience, as compared to their TPS counterparts. Network charter schools show similar differences, hiring teachers with 8.8 fewer years of experience and support staff with 12.2 years less experience, for an average difference of 7.5 years less experience than TPS, across all staff.

Despite these differences in staff experience levels, teacher and support salaries in TPS and charter schools appear relatively similar. Only administrative salaries in non-network charter schools appear significantly different from TPS, with non-network administrators earning $23,881 higher than their TPS counterparts, despite no significant difference in experience level. Figure 4-1 summarizes the findings from Model One.

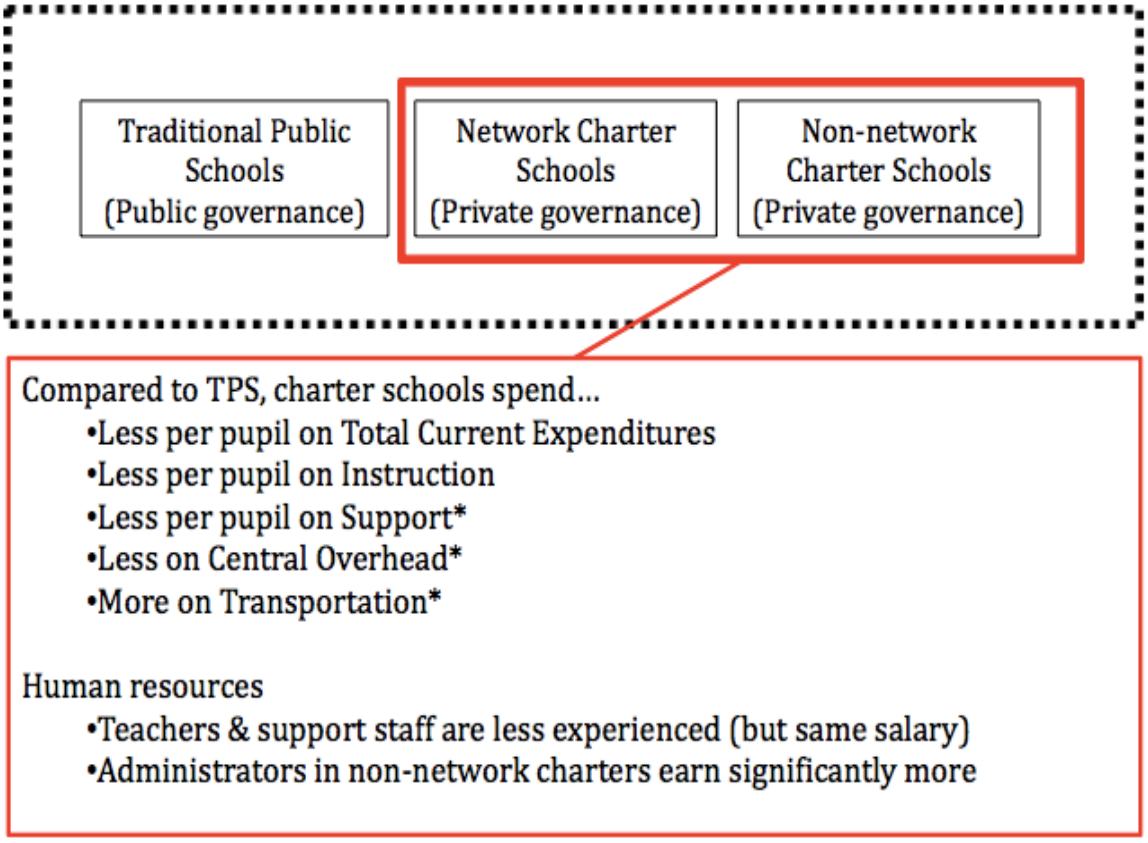

Figure 4-1. School-level Spending Trends

Model Two: Comparing Resource Allocation in Local Education Agencies

The regression for estimating resource allocation differences between spending aggregated to the district (LEA) level takes the following form:

$$Y = a_0 + b_1(\textit{Non-network charter LEA}) + b_2(\text{Network charter LEA}) + b_3(\textit{\% economic disadvantage}) + b_4(\textit{\% special education}) + b_5(\textit{ADM/1000})$$

Where Y is the expenditure category or human resource indicator. LEA-type is dummy coded as non-network charter, or network charter, with the traditional public school district (Orleans Parish School Board) as the base category. Non-network charter LEA's are comprised of a single school site. Network charter LEA's

are charter management organizations that manage multiple school sites. A total of 44 organizations are included in the model. One traditional public district manages six schools. 31 LEA's are single-site districts, managing only one school. 12 charter management organizations manage a total of 45 network charter schools.

Table A-6 and Table A-7 (see Appendix A) show mean district-level differences in resource allocation that persist after controlling for school and student covariates. Table A-6 expresses these differences in terms of average per pupil expenditures, while Table A-7 displays those same differences as a percentage of Total Current Expenditures. Table A-8 (see Appendix A) shows mean difference in salary and experience levels across several human resource indicators.

Model estimates show no statistically significant per-pupil spending differences across LEA's, after controlling for school and student covariates. The model also shows no significant differences in LEA spending when expressed as a percentage of Total Current Expenditures, nor do any significant differences appear within the human resource indicators modeled. Figure 4-2 summarizes the findings from Model Two.

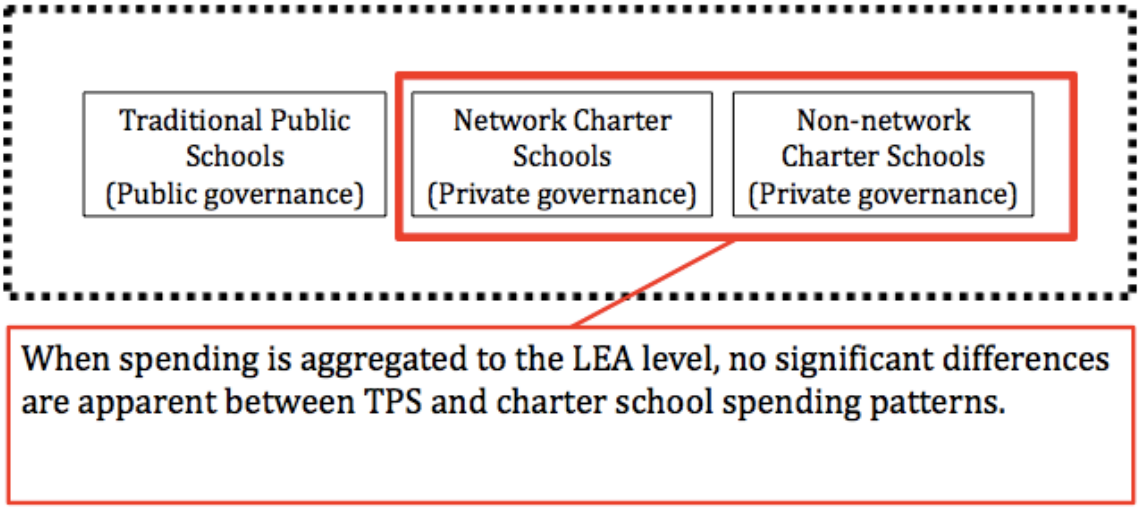

Figure 4-2. LEA-level Spending Trends

Model Three: Comparing Resource Allocation in Centralized and Decentralized Schools

The regression for estimating resource allocation differences between centrally managed, and site-based managed schools, takes the following form:

$$Y = a_0 + b_1(\textit{centralized management}) + b_2(\textit{magnet school}) + b_3(\textit{alternative setting}) + b_4(\textit{elementary/middle school}) + b_5(\textit{combo/high school}) + b_6(\textit{school age}) + b_7(\textit{SPS score}) + b_8(\textit{\% economic disadvantage}) + b_9(\textit{\% special education}) + b_{10}(\textit{ADM/1000})$$

Where Y is the expenditure category or human resource indicator. School type is dummy coded as centrally managed, with site-based managed (SBM) schools as the base category. Centralized schools include both network charter schools and traditional public school governed by the local school district, and site-based managed schools including all non-network charter schools. A total of 82 schools are included in the model. 51 schools in the sample are schools under centralized management, while 31 schools are site-based managed, non-network charter

schools, Grade level is dummy coded as elementary, or elementary/high school combination, with high school as the reference.

Table A-9 and Table A-10 (see Appendix A) show mean school-level differences in resource allocation between centralized and SBM schools that persist after controlling for school and student covariates. Table A-9 expresses these differences in terms of average per pupil expenditures, while Table A-10 displays those same differences as a percentage of Total Current Expenditures. Table A-11 (see Appendix A) shows mean difference in salary and experience levels across several human resource indicators.

Model estimates show no significant per-pupil differences in Total Current Expenditures between centralized and SBM schools, after controlling for school and student covariates. A per-pupil spending difference does appear within the Pupil/Instructional Support category. Centralized schools appear to spend $508 more per pupil than SBM schools, after controlling for student and school covariates. When modeled as a percentage of Total Current Expenditures, this spending difference represents 4.1% in additional spending by centralized schools on Pupil and Instructional Support, which is also statistically significant.

Table A-11 summarizes mean differences in a variety of human resource characteristics between centralized and SBM schools. No significant differences appear between the experience level and salaries of teachers and pupil support staff, including all staff on average. Significant differences do appear within school administration, with centralized schools hiring school administrators with 5.1 fewer years of experience. School administrators in centralized schools also appear to earn

$12,548 less in salary than their site-based managed counterparts. Figure 4-3 summarizes the findings from Model Three.

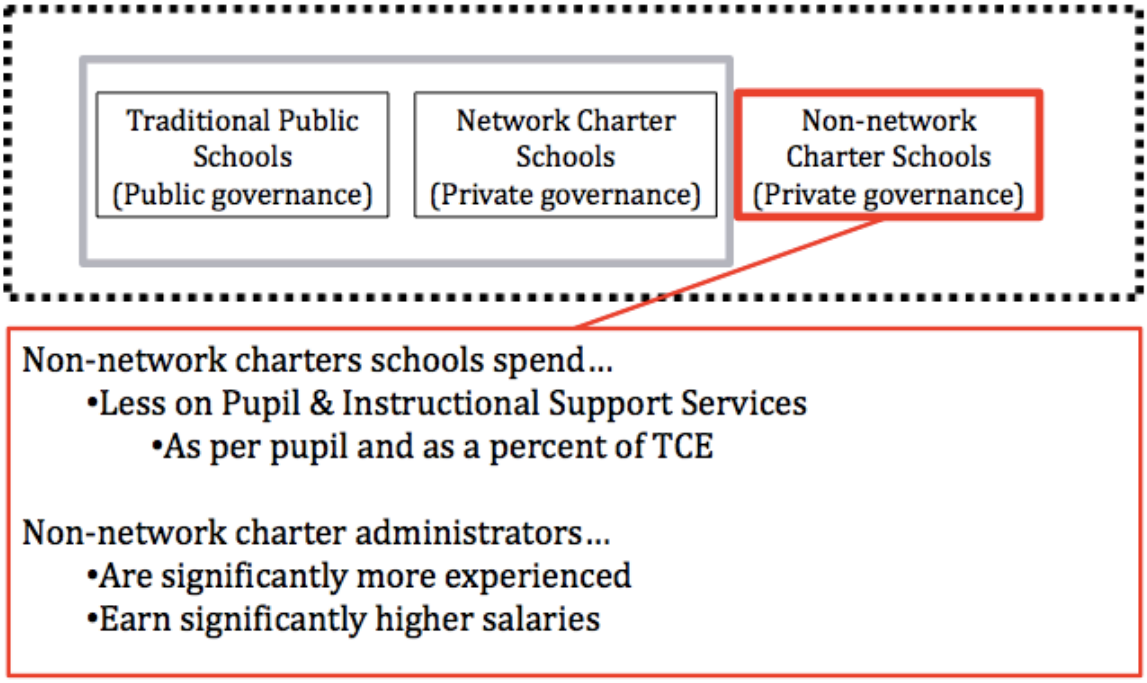

Figure 4-3. Centralized Management Spending Trends

Model Four: Comparing Resource Allocation Within the Charter School Sector

The regression for estimating resource allocation differences in network charter and non-network charter schools takes the following form:

$$Y = a_0 + b_1(\textit{network charter}) + b_2(\textit{magnet school}) + b_3(\textit{alternative setting}) + b_4(\textit{elementary/middle school}) + b_5(\textit{combo/high school}) + b_6(\textit{school age}) + b_7(\textit{SPS score}) + b_8(\textit{\% economic disadvantage}) + b_9(\textit{\% special education}) + b_{10}(\textit{ADM/1000})$$

Where Y is the expenditure category or human resource indicator. School type is dummy coded as network charter, with non-network charter as the base category. A total of 76 schools are included in the model. 45 schools in the sample are network

charter schools, while 31 schools are non-network charter schools, Grade level is dummy coded as elementary, or elementary/high school combination, with high school as the reference.

Table A-12 and Table A-13 (see Appendix A) show mean school-level differences in resource allocation between network and non-network charter schools that persist after controlling for school and student covariates. Table A-12 expresses these differences in terms of average per pupil expenditures, while Table A-13 displays those same differences as a percentage of Total Current Expenditures. Table A-14 (see Appendix A) shows mean difference in salary and experience levels across several human resource indicators.

Model estimates show no significant per-pupil differences in Total Current Expenditures between network and non-network charters, after controlling for school and student covariates. However, differences do emerge within spending categories. On average, network charter schools spend $367 more on Pupil/Instructional Support than their non-network counterparts. And, network charters spend $433 less than non-network charters on Central Office Overhead. Lower Central Overhead spending by network charters remains significant when combined with School Administration expenditures, with network charters spending $507 less per pupil on the combined measure of administration and overhead than non-network charters.

Spending patterns within the charter sector look similar when expressed as a percentage of Total Current Expenditures. Table A-13 summarizes these differences, with network charter schools spending 3.7% more on Pupil and Instructional

Support services, and less on both Central Office Overhead (-3.2%) and the combined measure of School Administration plus Central Overhead (-3.7%).

Table A-14 summarizes mean differences within the charter school sector across a variety of human resource characteristics. Although network charter schools appear to higher teachers with less years of experience, this difference is not statistically significant. Network charters appear to employ administrative staff with 5.7 fewer years of experience, and pupil support staff with 4.2 fewer years of experience, both of which are statistically significant after controlling for covariates. Figure 4-4 summarizes the findings from Model Four.

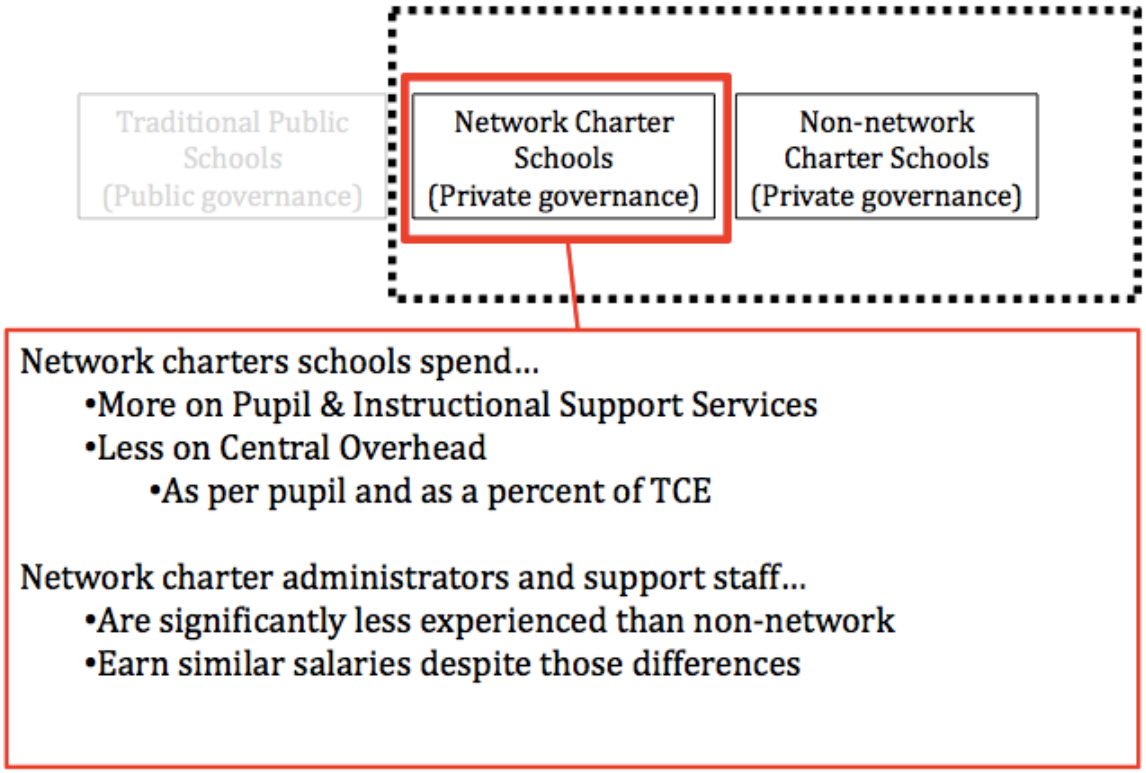

Figure 4-4. Charter Sector Spending Trends

Model Interpretation and Analysis

Total Current Expenditures

Total Current Expenditures (TCE) are expenditures for the day-to-day operation of schools, including expenditures for staff salaries and benefits, supplies, and purchased services. Expenditures associated with repaying debts and capital outlays, and expenditures outside the scope of pre-K through 12 public education, are excluded from current expenditures. Eliminating these expenditures from the models can help provide better comparisons in spending levels (Baker et al., 2012). On average, charter schools in New Orleans spend $2,394 less per pupil on Total Current Expenditures than their TPS counterparts. Total Current spending differences are similar when comparisons are made while controlling for school and student level characteristics.

Using school-level data, Model 1 suggests that non-network charter schools spend $2504 less per pupil on TCE than their TPS counterparts, while network charters spend $3016 less per pupil. Both differences are significant. These differences disappear in Model 2, however, when data are aggregated to the LEA level, with no significant difference in the Total Current Expenditures of TPS and either type of charter school. In other words, when spending is modeled at the LEA level, Total Current Expenditures of the traditional district, network charters, and non-network charter schools are not significantly different. Nor do differences appear in Model 3, when centralized schools are compared to non-network charter schools. TPS and network charter schools, as centrally managed groups of schools,

do not spend significantly different than non-network charters, which operate as a single LEA. In Model 4, within the charter school sector itself, no significant differences are apparent in school-level Total Current Expenditures between network and non-network charter schools. To summarize, TPS appear to be spending more than charters schools on Total Current Expenditures, at the school level. However, when spending is aggregated to the LEA level, these differences become insignificant.

The disparities in Total Current Expenditures at the school level raise questions about the equitable funding levels across public schools in New Orleans. Are traditional public schools receiving more overall funding than charter schools within the same market? If so, in which expenditure categories are these additional funds being spent? This analysis does not include a comparison of per pupil revenue amounts for schools in New Orleans, but spending data suggest that TPS are indeed spending larger amounts on Total Current Expenditures. Per-pupil funding levels can be tied to differences in student demographics, capital needs, and other factors (Huerta & d'Entremont, 2010). In New Orleans, funding differences may also be tied to revenue retained by OPSB for charter oversight, and to other services provided by the central district as part of their role as Portfolio Manager (OPSB, 2016).

An examination of spending within specific spending categories follows, and provides a more detailed examination of how competing schools and organizations are allocating resources toward specific areas.

Instructional Expenditures

Instructional Expenditures cover activities dealing directly with the interaction between teachers and students. These activities provide students with learning experiences and include Regular Education, Special Education, and Co-Curricular Activities. On average, charter schools spend nearly $1000 less on Instruction than their TPS counterparts. After controlling for student and school characteristics, Model 1 suggests that school-level Instructional spending differences remain significant between TPS and charter schools, with non-network charter schools spending $935 less on Instruction per pupil. Network charters spend $1397 less per pupil. When Instructional spending is examined as a percentage of Total Current Expenditures, however, these differences become insignificant, suggesting that charters and TPS spending differences may be more a function of the amount of funds available to schools, rather than being based on a difference in strategic priorities. TPS and charter schools of both types appear to spend a statistically similar proportion of Total Current Expenditures on Instruction.

Instructional spending amounts in TPS and charter schools also appear to be similar when data are aggregated to the LEA level, in Model 2. No significant difference in Instructional spending (neither as a per-pupil amount nor as a share of spending) appears between Instructional spending in the traditional district (OPSB), charter management organizations, and single site charter LEA's. Nor do differences emerge in Model 3, when comparisons are made between centralized schools (OPSB

and CMO's) and decentralized, non-network charter LEA's, or in Model 4, within the charter sector.

The overall similarity in the share of spending devoted to Instruction, across all regression models, suggests that competitors in the New Orleans marketplace, whether TPS, network charter, or non-network charter, share similar priorities once student and school characteristics are taken into account. Put differently, public schools in New Orleans allocate the largest share of spending towards Instruction, regardless of the governance and management structure of the school. Differences in per-pupil amounts spent on Instruction become significant when expressed as a share of Total Current spending. This finding suggests that per-pupil differences in Instructional spending are less related to a difference in the strategic priorities of schools, and perhaps more closely related to the amount of funds available.

Support Services

Support services provide administrative and technical support activities used to strengthen instruction. Pupil Support Services include Attendance and Social Work, Guidance, Health Services, including speech and occupational therapy, Support for Individual Special Needs Students, and activities to increase Parent/Family Involvement. Instructional Staff Support Services assist the instructional staff with the content and process of providing learning experiences for students, including School Improvement Plans, Curriculum Development, Professional Development services, and Media Services.

On average, charter schools in New Orleans spend $1315 per pupil on Support Services, around $857 less than TPS spend on the same type of services. School-level data in Model 1 show significant per pupil spending differences on Support Services after controlling for student and school covariates, with non-network charters spending $1077 less per pupil than their TPS counterparts and network charters spending around $751 less per pupil, both statistically significant differences. Only non-network charters schools, however, spend significantly less as a proportion of Total Current Expenditures, with non-network charters spending 6% less on Support Services than TPS. Network charters, on the other hand, do not appear to allocate a significantly different portion of their TCE on Support Services, despite spending more per pupil. Spending patterns are similar in Model 2, when data are aggregated to the LEA level, with no significant differences apparent in Support spending between TPS, CMO's and single site charter LEA's.

When groups of centralized (TPS and CMO) and decentralized schools are compared in Model 3, spending differences in Support Services are again significant, with decentralized, non-network charter schools spending around $508 less per pupil than centralized schools. Expressed as a proportion of Total Current Spending, these differences remain significant, with TPS and network charter schools collectively spending 4.1% more than non-network charter schools. Model 4 reinforces the finding that centralized schools spend more on Support Services. Within the charter sector, network charters spend more per pupil and more as a share of TCE than their non-network counterparts.

To the extent that centrally managed schools appear more likely to allocate resources to Support Services than their decentralized counterparts, perhaps it is because the larger overall size of the TPS district and CMO organizations provides them with some economies of scale. Services such as speech and occupational therapy, counseling, and in-house professional development require specialized personnel or, if not managed internally, must be outsourced to third-party providers. Without a critical mass of students to pay for these positions or services, it is possible that non-network charter schools, as smaller organizations, are simply less able to provide some services. As the number of students requiring particular services increases, it's reasonable to expect that the per pupil cost of those services will go down. It also becomes more likely that schools will need to provide a wider range of services as the community grows larger because more students and families will need those supports.

Of course, spending differences in Pupil and Instructional Support might also be due to differences in student population enrolled in particular schools (fewer students with particular needs) and faculty characteristics (novice teachers, for example may require more instructional support), or simply from differences in the level and type of support services provided by each school. Separating the Support Services expenditure category into Pupil and Instructional components could provide clarification for understanding these differences.

Transportation Expenditures

Transportation services are used to convey students to and from school, as provided by State and Federal law. On average, charter schools in New Orleans spend $331 more per pupil than their TPS counterparts. Using school-level data, and after controlling for student and school characteristics, Model 1 suggests that non-network charter schools do not spend significantly more per pupil than TPS on transportation. Taken as a percentage of Total Current Expenditures, however, Transportation in non-network charters represents a 2.5% increase over spending in TPS, which is statistically significant. Network charter schools spend around $234 more per pupil on Transportation than TPS, representing a 2.8% increase over TPS spending, both of which are statistically significant differences.

No other models showed a significant difference in Transportation spending. In other words, Transportation spending appears similar across the traditional district and all charter schools at the LEA level; across centralized (TPS and CMO) and decentralized (non-network charter) schools; and across the charter sector itself.

That individual charter schools, both network and non-network, spend a larger portion of their funding on Transportation than traditional public schools may be due to the fact that they compete for students from a wider geographic area than traditional public schools. TPS have a history of serving specific families from the surrounding neighborhoods, a relic of the former residence-based enrollment system. They may also feel less financial pressure to recruit students when under-

enrolled, due to the ability of the traditional district to provide centralized resources that may otherwise not be available in cases of lower enrollment. Charter schools, as newer schools, and as schools designed for a market approach to education, have always operated in a competitive environment that seeks maximize enrollment by recruiting students from wherever they are available.

School Administration and Central Office Overhead

School Administration expenditures pay for activities concerned with the overall administrative responsibility for a school, including activities performed by the Principal and Assistant Principals. Central Office Overhead expenditures include General Administration expenses used to fund activities for operating the LEA, and the prorated share of central office and other non-school site services that provide LEA-wide support. On average, charter schools spend $1278 per pupil on School Administration, compared to $1136 per pupil by TPS. Charters spend an average of only $909 per pupil on Central Overhead, which is $1632 less than the average TPS.

After controlling for student and school-level characteristics, no per pupil difference appears to exist between charter school spending on School Administration as compared to TPS, regardless of the unit of analysis. Whether examined as individual schools, or as LEA's, per pupil spending on School Administration is similar in TPS and charter schools. Non-network charter schools do appear to spend 3.5% more on School Administration as a percentage of Total Current Expenditures when comparisons are made across individual schools in Model 1, but comparisons of LEA-level spending, centrally managed schools (TPS

and CMO) versus decentralized schools, and comparisons within the charter sector all reveal no significant differences in School Administration spending, whether expressed as per pupil differences or as a share of spending.

Central Overhead expenditure comparisons reveal statistically significant differences between school sites, both between TPS and charter schools, and within the charter school sector. Model 1 suggests non-network charters spend $1400 less per pupil than TPS schools, representing an 8.5% smaller share of Total Current Expenditures. Central Overhead expenditures are even lower in network charter schools, where per pupil spending is $1776 lower per pupil, representing an 11.2% reduction in the Total Current Expenditures. Model 4 suggests overhead expenditures are also significantly different within the charter school sector, with network charters spending $433 less per pupil as compared to non-network charter schools, a 3.2% smaller share of Total Current Expenditures. Spending differences on Overhead are insignificant, however, when comparisons are made at the LEA level in Model 2, and across centralized and decentralized school groups in Model 3.

To account for the possibility that differences in accounting practices may allocate some expenses at the school level to the central office in cases of centrally managed schools, School Administration and Central Overhead are analyzed individually, and as a combined measure. Comparisons along the combined measure are similar to the single measure of Overhead expenditures, with significant differences appearing in school-level data between TPS and charters of both types, and within the charter sector. Model 1 suggests non-network charter schools spend $1146 (-4.5% as a share of TCE) less than TPS schools, while non-network charters

spend $1647 less (-8.3% as a share of TCE). Model 4 suggests that, within the charter sector, network schools spend $507 less (-3.7% as a share of TCE) less than their non-network counterparts. No significant differences exist when the comparisons of combined School Administration and Central Overhead spending are drawn using LEA-level data in Model 2, or when TPS and CMO schools are collectively compared to non-network charter schools in Model 3.

Although non-network charter schools do appear to spend a slightly larger share of funds on School Administration as compared to TPS, the lower amounts they spend on Central Overhead more than make up for that difference when considered as a combined measure. Model 1 suggests school-level administrative and overhead spending in charter schools of all types is significantly lower than in TPS. Importantly, however, these differences become insignificant when examined at the LEA level in Model 2. In other words, no significant differences appear in administrative and overhead spending between the traditional district, CMOs, and single-site charter LEAs. Nor is spending significantly different when school-level data are used in Model 3 to compare TPS and CMOs to non-network schools. Centralization does appear to impact administrative and overhead spending within the charter sector in Model 4. Network schools spend $507 less (-3.7% as a share of TCE) on combined administration and overhead than non-network schools, suggesting that CMOs are finding some savings within specific schools under their control, but not necessarily at the LEA level. Put differently, the variations in administrative and overhead spending between the TPS, network and non-network charters are significant only at the school level. At the LEA level, all organizations

appear to be spending similar amounts on administration and overhead. Charters in general, and network charters relative to non-network charters, do appear to be spending less in individual schools as opposed to others, but these differences are not significant when examined across larger management organizations. These findings suggest that schools may be allocating resources differently within single school sites, but not necessarily across the larger centralized organizations that operate most schools.

Human Resource Indicators

Human Resource indicators can provide a more nuanced look at how organizations within the New Orleans school system may be deploying resources differently, as opposed to the broader categories examined above. Regression models were used to model staff experience and salaries across several comparison groups while controlling for school and student level covariates.

On average, charter sector employees have fewer years of experience and earn lower salaries than their TPS counterparts. The notable exception is that charter sector administrators earn higher salaries, despite their lower levels of experience. Compared to their TPS counterparts, the average teacher in charter schools has 9.0 years less experience and earns $2012 less each year; the average support staff has 11.8 years less experience and earns $1095 less each year; and the average administrator possesses 2.9 years less experience, but earns $15654 more in annual salary.

Controlling for a variety of student and school-level characteristics provides a more accurate comparison of these personnel indicators. Model 1 suggests teachers in non-network charter schools possess 6.9 fewer years experience than their TPS peers, and network charter teachers are 8.8 years less experienced, when comparisons are drawn across individual schools. These lower levels of teacher experience in charters are significant after controlling for covariates, despite the finding that TPS and charter teachers earn salaries that are statistically similar. In other words, school-level data suggest that teachers in charter schools are being paid similar salaries as their TPS peers, despite having significantly fewer years of classroom experience. Support staff in non-network and network charter schools also possess fewer years of experience, with 8.5 and 12.2 fewer years experience, respectively. Salaries for support staff in charter schools and TPS are also not statistically different from TPS schools, despite the difference in experience level. Charter school administrators in New Orleans, whether in network or non-network schools, appear to bring statistically similar levels of experience as their TPS counterparts, after controlling for school and student characteristics. While network charter administrators earn statistically similar salaries as TPS administrators, non-network administrators earn $23,881 more in annual salary than their TPS counterparts, despite similar levels of experience. The higher administrative salaries in non-network charter schools may be linked to the fact that non-network charters, on average, higher few overall administrators (4.2 FTE) than network charters (5.8 FTE) and TPS (4.5 FTE). Given that non-network charter schools are tasked with the responsibilities of both a single site school and of an LEA, it is perhaps to be

expected that administrators in those schools earn more. They are charged with filling the role of both site leader and as the single point of authority for all school related matters, as opposed to network and TPS administrators who can rely on central office administrators to provide some administrative functions.

School-level data in Model 3 show fewer differences in human resources when centralized TPS and CMO sites are compared with decentralized, non-network charters. Only administrative personnel indicators appear to be significantly different, with TPS and CMO administrators possessing 5.1 fewer years experience and earning $12548 less in annual salary. Centralized management also appears to influence human resource allocation within the charter sector. Although no salary differences are apparent, Model 4 suggests network charter school administrators and support staff are less experienced than their non-network counterparts, with 5.7 years and 4.1 years less overall experience than their non-network charter peers. These differences are consistent with the idea that network charter personnel might benefit from the support provided by a central office, and may therefore need less overall experience to be successful.

Despite these school-level differences, comparisons of data aggregated to the LEA level in Model 2 indicate a no statistical differences between personnel at the traditional district, CMOs, and non-network charters. Staff experience levels and salaries are statistically similar across all LEAs, regardless of governance or management structure. Similarities at the LEA level suggest that competition for human resources may not necessarily be occurring at the district level. Rather,

organizations are being strategic about deploying resources across different schools within their centralized networks.

Discussion of Trends in Resource Allocation

One intended benefit of school choice and competition is that the educational marketplace will free schools from bureaucracy and the public monopoly by providing a market incentive to improve and to become more efficient (Chubb & Moe, 1990; Friedman, 1955; Hoxby, 2001). By this view, competition will improve schools by encouraging them to eliminate wasteful programs and focusing their resources more intensively on instruction and programs that more directly impact student outcomes. Baker et al. (2012) note, "[an] important step toward understanding cost is [to] determine spending for specific programs and services or under specific governance structures" (Baker et al., 2012, p. 6). By comparing spending patterns of schools in the New Orleans marketplace, this study contributes to the understanding of how privatization and decentralization might impact the cost of achieving particular school outcomes.

The school choice marketplace in New Orleans creates competition between all public schools for students and other resources. Some schools in the choice set are governed by the publicly elected Orleans Parish School Board (OPSB); some are privately governed by local non-profit organizations. Some schools are managed by centralized management organizations, and others by decentralized, site-based management organizations. By modeling the spending patterns in these schools, and controlling for a variety of school and student level characteristics, this study

attempts to identify the impact that governance and management structures might have on how resources are allocated within a competitive school marketplace.

This examination of school and LEA level spending uses 2014-15 financial data from public schools in New Orleans. Each LEA provides expenditure data to the Louisiana Department of Education (LDE) through its Annual Financial Report. Although schools are required to report data using the *Louisiana Accounting & Uniform Governmental Handbook*, each organization is responsible for coding its own financial activity. If spending data are not categorized consistently across organizations, comparisons can be imprecise, particularly within centralized organizations that must allocate resources between a central office and school site (see Baker et al., 2012). This study uses Total Current Expenditures to model school spending, which excludes expenditures related to debt and capital outlay, to examine overall levels of spending in New Orleans' public schools. Models also predict school expenditures in the categories of Instruction, Pupil and Instructional Support, Transportation, School Administration, and Central Office Overhead.

The resource allocation patterns that emerge are interpreted below using a conceptual framework of educational accounting practices, structural aspects of the school marketplace, including school governance and management structures, and through the strategic responses that schools employ as they respond to competition from the marketplace.

School-level Expenditure Patterns in the Educational Marketplace

Charter school proponents suggest that competition will lead to more efficient spending within schools, primarily by devoting more resources toward instruction, and less towards administration (Brown, 1990; Finn et al., 2000; Hill et al., 1997). However, much of the research examining these efficiencies questions the veracity of those claims (Arsen & Ni, 2012a, 2012b; Carpenter 2013; Miron & Nelson, 2002; Miron & Urschel, 2010; Miron et al., 2011). This study builds on prior research by examining resource allocation within a single, competitive marketplace and using statistical analyses to control for a variety of factors that might influence resource allocation in schools. School-level data analysis from public schools in New Orleans suggests that charter schools spend significantly less on Total Current Expenditures than their TPS counterparts. However, a more nuanced understanding of spending differences and specific areas of efficiency can be gained by examining spending within specific expenditure categories. Models discussed here also attempt to identify the specific impact that privatization and centralized management might have on school resource allocation within the marketplace.

Instructional spending in the marketplace. School choice advocates suggest that, as part of the response to competition, charter schools will focus more resources on instruction and programs that will directly impact student outcomes (Finn, Manno & Vanourek, 2000; Hill et al., 1997). Regression models suggest that, at the school level, the charter sector in New Orleans actually spends less per pupil on Instruction than their TPS counterparts. Because the regression models control for

student and school-level characteristics, including academic performance, these lower instructional costs may suggest a greater level of efficiency in privately governed schools in the marketplace. The impact of centralized management on school-level instructional spending, however, appears to be less significant. Instructional spending in schools managed by centralized charter networks is not significantly different than in decentralized, non-network charter schools. This suggests that charter schools, as a privatized sector, may be developing lower cost instructional systems, relative to their TPS counterparts. To the extent that these innovations do not see further efficiencies from the economies of scale expected in centralized organizations, it may be that scaling the complex nature of instructional work does not provide as much savings as other spending areas (see Duncombe & Yinger, 2001). Each classroom still requires a teacher, and there are practical and legal limits to the number of students in a classroom, which can limit the ability to scale instruction.

Lower administrative and overhead spending in the marketplace. Supporters of privatization suggest that spending in schools will go down when governance is shifted away from public bureaucracies, who become inefficient when they seek to satisfy the varied interests a public constituency (Chubb & Moe 1990). Models suggest that significant differences exist in school spending on School Administration and Central Overhead, where the privatized charter sector spends less (per pupil and as a share of total current expenditures) than their TPS counterparts. Non-network charter schools do appear to spend a larger share of their expenditures on School Administration alone, as compared to TPS, but end up

spending significantly less overall on the combined administrative measure. These findings suggest that, overall, administration in privatized charter schools may operate more efficiently than administration in traditional public schools.

In their review of studies on economies of scale, Andrews et al. (2002) found that operating and administrative expenditures are also responsive to the economies of scale gained through centralization. Spending patterns within the New Orleans charter sector support this finding. Although they spend similar amounts on School Administration, network charter schools spend significantly less than non-network schools on central overhead expenses, both on a per pupil basis and as a share of spending. These results suggest that network charters, in addition to enjoying efficiency from privatized management, benefit from the economies of scale that come with the centralized management structures provided by CMOs (Baker, 2003). In other words, at the school level, both privatized governance and centralized management appear to reduce overall administrative costs.

OPSB's higher levels of spending on administration and overhead may be rooted in Henig's (1994) characterization of districts as traditional institutions that are resistant to change. Alternatively, Baker and Miron (2015) suggest that spending comparisons between schools managed by traditional districts, charter management organizations and single site charter organizations may be problematic when centralized organizations spend resources on behalf of their individual schools. Centralized spending areas may involve federal funding, centralized grants, and other support services, representing areas of investment in schools that may not be accounted for in their individual financial statements. To

the extent that OPSB, as a centralized organization, appears to be less efficient with administrative and overhead spending than the charter sector, those differences may be due to the fact that OPSB has maintained many of the institutional structures of its central office, even as its role as a direct provider has continued to evolve from direct operation of schools.

Indeed, OPSB continues to provide a variety of services in its role as a charter school authorizer and portfolio manager, providing oversight and support to all area public schools. Taken by itself, school administrative spending by OPSB is largely similar to the spending in the charter sector. Most of the difference in administrative costs comes from spending on Central Overhead Services. Given the small size of OPSB, even modest overhead expenditures on behalf of charter schools could result in significant increases in per pupil spending averages within the OPSB schools. The system of schools in New Orleans continues to change each year, and current reporting systems make it difficult to fully understand how all resources are accounted for at a city-wide level. [1]

Support services spending in privatized and centralized schools. School expenditures on Support Services in New Orleans include both Pupil and Instructional Support. The combination of these two categories into one spending indicator is a clear example of how broadly defined reporting categories can lead to imprecise analyses because they do not provide enough detail to identify specific program spending (Baker et al., 2012; Baker et al., 2015). In the New Orleans school marketplace, models suggest TPS spend significantly more than the charter sector

[1] See Orleans Parish School Board, *Unification Plan*, adopted August 30, 2016.

on Support Services, particularly compared to non-network charters, where TPS spend more on both a per pupil basis and as a share of Total Current Expenditures. TPS schools spend more per pupil on Support Services than network charter schools, but not as a share of total spending, suggesting that network charters place a similar priority on Support Services. Support spending in centralized schools (both TPS and CMOs as a group), and in network charters alone, is higher than in decentralized, non-network charter schools, both as a per pupil amount and as a share of spending.

These results suggest that, as a group, centralized school organizations prioritize Support Services more than decentralized, single site schools. One possible cause for these results is that centralized management organizations, whether TPS or charter, may benefit from economies of scale with respect to providing Support Services. Without a better breakdown of the Support Services category, it is impossible to determine whether these resources are being targeted towards pupils or staff, but in either case, it appears that centralized organizations invest more in Support Services for their schools.

In their examination of how school mission might impact school operations, Henig et al. (2005) suggest that market-oriented schools (identified as EMOs) and business-related charters "may be more concerned with achieving economies of scale" (p. 505) than their mission-driven counterparts. These economies of scale may help explain why centralized schools are able to provide more Support Services to their organization, particularly if Support Services lead to better academic outcomes. Centralized schools, with an eye towards replication, will place a high

priority on academic success rather than on other outcomes that may be aimed at pleasing constituencies who value other goals.

Spending on transportation to facilitate school choice. Transportation Services are an area of spending that would also seem likely to benefit from economies of scale (see Andrews et al., 2002). Model results suggest, however, that centralization does not have a significant impact on Transportation expenses. No significant spending differences appear between centralized schools as a group, or within the charter sector. Privatized schools as a group, however, appear to be spending significantly more than TPS on Transportation Services, based on school-level data. Interestingly, network charter schools, which should theoretically benefit from greater economies of scale when purchasing these services, spend at similar levels compared to non-network charter schools. It is possible that privatized charter schools, created as market-oriented schools, are recruiting and transporting students from a wider geographic area than TPS, particularly if TPS rely on historical enrollment patterns that used neighborhood as a basis for school assignment. In other words, charter schools may be more likely to recruit and enroll students from all over the City, rather than being focused on a particular neighborhood.

That charter schools might be less focused on a particular community and neighborhood, and more focused on simply improving schools, regardless of constituency, is consistent with what Henig (1994) identifies as "contingent allegiance" (p18) to choice. In this view, charter operators have simple goals, "higher achievement scores, lower dropout rates, basic literacy, technical and

scientific skills" (p. 19). Community empowerment is not necessarily a goal for these operators. To that end, schools seek to recruit and enroll students who can succeed academically, regardless of where they live.

Despite the significant school-level spending differences discussed above, expenditure patterns in New Orleans public schools appears to be statistically similar when data are aggregated to the LEA level. The traditional district (OPSB), CMOs and non-network, single site LEA's spend in statistically similar ways across all expenditure categories. More discussion of this finding follows after a brief discussion on human resource indicators.

School-level human resource patterns in the educational marketplace. Baker (2009) notes that schools competing within a defined marketplace must also compete for human resources. The local labor supply, presented with options, will likely seek the best combination of salary and benefits, supports, and working conditions such as work schedule. On the demand side, schools will seek to employees who best fit their educational approach. The human resource patterns discussed below may help connect particular governance and management structures with how schools respond to competition within the labor market.

Governance, management structure and school personnel. In general, privatized charter schools appear to employ teachers and support staff with fewer years of experience as compared to their TPS counterparts. Despite those lower levels of experience, however, teacher and support salaries in TPS and charter schools are statistically similar. Privatized governance does not appear to have much impact on the experience level of school administrators, with TPS and charter

school site leaders having similar levels of experience after controlling for covariates. Centralized management, on the other hand, does appear to impact the experience level of school administrators. TPS and CMO school leaders, as a group, are less experienced than their non-network counterparts; network charter school leaders are also less experienced within the charter sector itself. School leaders in organizations with centralized support also earn lower salaries than non-network school administrators, suggesting that the absence of support from a central office may compel non-network schools to employ administrators with more years of experience and to pay those administrators for that experience.

Data suggesting that the privatized charter sector employs teachers and support staff with less experience is perhaps consistent with other efforts to privatize education. Alternate teacher certification programs[2], for example, are now competing with traditional schools of education to provide teachers for schools across the country. Alternate school leadership programs also exist, and in some cases are being operated by organizations born in the charter movement.[3]

LEA-level Resource Allocation Patterns in the Educational Marketplace

Baker (2003) suggests expenditure "disparities between schools within districts can be quite large, and in some cases be greater than disparities between districts" (p. 4). Other work on resource distribution in schools agrees (Burke, 1999;

[2] Teach for America and, more locally, teachNOLA are two examples of private certification programs.
[3] Relay Graduate School of Education, for example, grew from a partnership between Uncommon Schools, Achievement First, and KIPP, three successful CMO's.

Herter, 1996; Monk & Hussain, 2000; Taylor et al., 2011). Data from the New Orleans educational marketplace support these findings.

Spending variations within centralized organizations. All of the significant resource allocation trends identified using school-level spending data disappear when New Orleans data are aggregated to the LEA level. The traditional district (OPSB), charter school networks (CMOs) and non-network charter LEAs all appear to be allocating resources (across all expenditure categories and human resource indicators) in statistically similar ways, once school and student characteristics are controlled. That finding suggests that much of the variation in school spending in New Orleans is due to variation within LEAs, rather than across LEAs.

Put another way, it is likely that the significant differences in school-level spending exist not only between schools operated by different LEAs, but also between schools that are operated by the same LEA. Indeed, a cursory examination of school-level data within centralized organizations suggests that in some cases, Total Current Expenditures may differ by as much as 27% across schools operating in the same CMO. Differences in specific categories are even starker, where one CMO is spending twice as much on School Administration in one school versus another, even though both schools operate within the same network. Spending differences across schools in OPSB look similar. TCE vary by nearly 28% across schools, with School Administration expenditures varying by almost 300 percent. Similar spending ranges exist within LEAs across other expenditure categories, and across salary data.

The findings discussed above suggest that significant differences exist in how TPS and charter schools allocate resources at the school level, despite the similarities that exist when data are analyzed at the LEA level. To the extent that these trends identify different strategic priorities within schools, and even within LEAs, these trends have the potential to help understand how school organizations behave differently in the context of a competitive marketplace. The next section summarizes these findings and offers recommendations to policy makers who may seek to change the way resources are allocated in schools through the introduction of competition and choice policies.

V – CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The Educational Marketplace in New Orleans

This dissertation presents an investigation of how schools in New Orleans, a competitive educational marketplace, allocate resources toward different priorities. Using research on school choice and competition, I hypothesized that two criteria might influence how schools allocate resources in response to the educational marketplace: governance and management structure. Forms of school governance are identified as either public, through the elected school board, or private, through non-profit charter school boards. Forms of school management are identified as either centralized, in which multiple school sites are operated under the guidance of a larger organization, or decentralized, which provides site-based management of a single school site. Schools in New Orleans were categorized along these two criteria, and multiple comparison groups were used to analyze spending within schools. I used linear regression analysis to estimate the impact of school type school on school resource allocation and controlled for a variety of student and school-level covariates to help isolate the impact of my variables of interest.

The public school system in New Orleans represents a critical case for examining how schools allocate resources within a competitive marketplace. On the supply side, the feasible choice set of public school options includes traditional public schools (public, centralized), network charter schools (privatized,

centralized), and non-network charter schools (privatized, decentralized). Importantly, access to these schools is virtually unrestricted.[1] Any student can apply to any school. The absence of a residential assignment system for schools is an important component for creating demand within an educational marketplace. Competitive market forces are strongest when all families have the ability to choose among all school options. School funding structures also strengthen the demand side of the marketplace. Per pupil funding follows the student, which places direct pressure on schools to compete for student enrollment. This unique combination of factors makes New Orleans a critical case for examining school resource allocation within a highly competitive educational marketplace.

Limitations of the Study

It is important to note that this study faces several limitations. First, the data used for the analysis do not include spending on debt service and capital outlays, both of which can significantly impact school budgets, particularly in post-Katrina New Orleans, where rebuilding and repair of school facilities is still underway. The spending categories used in the linear regression analysis were also, in some cases, overly broad. Future research will benefit from a more fine-toothed analysis to help paint a clearer picture of spending patterns in schools. I also did not give full attention to the issue of spending efficiency, an important concept in the market metaphor for schooling. School Performance Scores were used as a covariate in my analysis, but including other measures of academic success could provide a more

[1] Five selective admission schools still exist in the city, which require students to meet specific academic or language proficiency standards to enroll. Most schools, however, are open enrollment.

thorough understanding of the link between spending and outcomes, and how they are impacted by market forces. Finally, the decision to use New Orleans as a case study may present limitations in generalizing findings to other educational marketplaces. Using the Herfihndahl Index provides a widely accepted construct for measuring competition between schools, but the level of competition in other markets, particularly those where demand for schools of choice may outstrip the supply of available schools, may significantly impact how schools use resources to respond to competition.

Despite these limitations, this research makes an important contribution to school choice literature. Much of the prior research examines the relationship between competition and resources by comparing TPS and charter schools using state or even national data sets (Arsen & Ni, 2012a; Baker et al., 2012; Miron & Urschel, 2010; Nelson et al., 2000; Ni, 2009). While these studies are successful in identifying trends within school types, they rely on comparison groups that are not in actual competition with each other. By analyzing schools within a clearly defined marketplace, the findings of this research provide a more complete understanding of how schools that directly compete with each other for students might be influenced by competition. My analysis produced evidence of significant differences in spending between schools governed by the public school board and by private non-profit organizations, and between schools managed by centralized organizations and decentralized, site-based organizations. These differences are summarized below.

Summary of Findings

School-level Resource Allocation Patterns

The findings in this study indicate that the Total Current Expenditures spent by privately governed charter schools in New Orleans are significantly lower than the publicly governed TPS schools with which they compete for students. Charter schools spend less per pupil in the categories of Instruction, Pupil and Instructional Support, and Central Office Overhead. Charters schools also spend more per pupil on Transportation, the only category where TPS spend less than the charter sector.

To better understand how these per pupil differences reflect spending priorities, the study also examined categorical expenditures as a percentage of Total Current Expenditures. Despite spending less per pupil on Instruction, the charter school sector dedicates a similar share of their spending toward those activities. Other categories also follow the per pupil trends. Charter schools spend proportionally less on Central Overhead and more on Transportation. The charter sector's spending trends, however, are not monolithic. While network charter schools spend a similar share of spending on Support Services and on School Administration as do TPS, non-network charters spend a smaller share on Support Services, and more on School Administration, as compared to TPS.

Human resource comparisons indicate the privatized charter sector employs less experienced teachers and support staff than their TPS counterparts. Despite the differences in experience level, charter school salaries for those roles were not significantly different from those in TPS. One significant difference did emerge for

school administrative personnel, where non-network charter schools pay significantly higher salaries than TPS schools, despite hiring administrators with similar levels of experience.

Findings indicate that most spending in centralized schools, as a group (both TPS and network charter), is not significantly different from spending in decentralized, non-network charter schools. Only on Support Services do non-network charters spend significantly less than TPS and network charter schools, both as a per-pupil amount and as a share of spending. Comparing centralized to decentralized schools also identified largely similar spending on personnel, with the only significant difference being that non-network charters employ school administrators with more experience, and at a higher salary level.

Total Current Expenditures within the decentralized charter school sector are statistically similar across network and non-network charter schools. However, recentralization does appear to significantly impact spending in two ways. Network charters spend more on Support services, and less on Central Overhead than their non-network counterparts. No significant differences emerge in the salaries paid to staff within the charter sector, but network charter schools do employ administrators and support staff with fewer years of experience.

LEA-level Resource Allocation Patterns

Despite the school-level spending differences identified between TPS and privatized charter schools, between centrally managed and site-based managed schools, and between network and non-network charter schools, no significant

differences appear to exist across those comparison groups when spending data are aggregated to the LEA-level. After controlling for school and student level characteristics, the traditional school district (OPSB), charter management organizations, and single-site non-network charter schools (which serve as their own LEA) show no statistical differences in how they allocate resources.

The Educational Marketplace: Lessons Learned From New Orleans Public Schools

School spending patterns suggest that school governance and management structures do have a significant impact on how resources are allocated to individual schools in the New Orleans marketplace. Per pupil current expenditures in privately governed charter schools are significantly lower than in publicly governed TPS. As might be expected of market-oriented schools, nearly half of those savings stem from lower spending by charters on School Administration and Central Office Overhead. However, charters also spend less per pupil on Pupil and Instructional Support and less on Instruction, although the difference in Instructional spending becomes insignificant when expressed as a share of current expenditures. The fact that charters do not allocate more resources toward instruction-related activities is not necessarily a negative trend. It may simply indicate that charter schools are finding less costly ways to provide instructional services to their students. Lower spending on administrative costs and overhead suggests that privatization can also result in cost-savings in areas long criticized as bloated and wasteful spending by public bureaucracies. These findings have important implications for policy makers

as they relate to privatization. Charters schools in the New Orleans marketplace operate at significantly lower spending levels than their TPS counterparts. If policy makers are seeking to identify ways to reduce overall spending on education, privatized governance of public schools appears to deliver those lower costs. An important next step in determining the efficiency of the school marketplace in New Orleans will be to evaluate those savings in the context of student achievement and other outcomes.

Privatized charter schools, despite their lower levels of spending in most categories, do allocate a significantly larger share of current spending on Transportation services, compared to TPS. As market-oriented schools, charters may be seeking and enrolling students from a broader geographic area than their TPS counterparts. Interestingly, centralization appears to have no significant impact on Transportation spending. Network and non-network charter schools do not spend significantly different amounts on these purchased services. It seems counterintuitive that centralized charter networks would not enjoy some economies of scale in transportation costs, relative to their non-network counterparts. Transportation may be one area that suffers from consolidation and growth. As centralized management organizations expand their overall enrollment, the cost of covering more neighborhoods may simply offset any potential savings gained from economies of scale. As policy makers and school operators seek to identify additional ways to decrease Transportation costs, it may be that economies of scale are only possible for bussing once a particular tipping point is reached for students

within particular service areas, rather than just from increasing the overall student population of the school.

From a human resource perspective, administrators, teachers and support staff, will find significant differences in how privately governed charter schools allocate resources toward personnel. Charter schools in New Orleans employ teachers and support staff with significantly fewer years of experience than those in TPS, yet pay salaries that are not significantly different. This suggests that teacher and support staff salaries are higher in charter schools, relative to the years of experience of those employees. For employees in schools with salary steps and other pay increases related to tenure, those differences could result in significantly higher earnings over the span of a career. Private sector charter administrators are not less experienced than those in TPS, but administrators in non-network charters do earn significantly higher salaries than TPS, a finding that is also related to centralized management practices. TPS and charter school administrators, as a group, are both less experienced, and earn lower salaries than non-network charter administrators. It is possible that single site charter schools employ administrators with more experience due to the demands placed on a school leader without the support of a central office. If that is the case, it is logical that non-network charter administrators also earn higher salaries, in exchange for the increased administrative skill set required to lead a school without the support that a central office typically provides. School administrators who are attracted by the higher earnings in non-network charter schools should understand that the increased

salary possible in non-network charter schools is likely to carry with it significant demands beyond the school leadership roles that exist in centralized organizations.

In addition to having an impact on administrative salaries, centralized management of schools also has a significant impact on other areas of school spending. Specifically, schools managed by centralized organizations, whether TPS or network CMOs, spend more per pupil, and more as a share of spending, on Pupil and Instructional Support Services. To the extent that these support activities improve the well being of students and improve the ability of staff to provide learning experiences for students, these investments have important implications for members of the school community. Without a more detailed breakdown of Support spending into its component parts, it is not possible to determine whether more investments are being made in direct student services (e.g. social work, guidance and health) or in staff support (e.g. supervision, curriculum development and training), but either area of spending is likely to strengthen the experience of both students and teachers.

Centralized management also has a significant impact on reducing overhead spending in charter schools, on top of the benefits identified as resulting from privatization. Network charter schools spend significantly less on Central Office Overhead on both a per pupil and pro rata basis. For policy makers seeking to minimize central office spending and to maximize investments in activities that support students and instruction, the combination of centralization and privatization offered by charter management organizations offers the best combination of governance and management. It may seem counterintuitive that

charter network schools, which rely on a centralized office to provide some services, would spend less on overhead than decentralized, non-network charter schools that operate without a central office, but the ability of centralized organizations to achieve economies of scale may explain the difference. To the extent that CMOs serve more students, and are able to spread overhead costs across that larger population, it makes sense that per pupil spending would be higher in non-network schools that must perform all administrative functions within a single organization, especially those roles traditionally filled by a central office.

The lessons from New Orleans discussed above provide important insights into how governance and management structure can impact spending and human resources at the school level. However, perhaps the most important implication of this study's findings is that, while individual schools within the New Orleans school marketplace spend resources in significantly different ways, governance and management structure have no significant impact on resource allocation at the LEA level. Put differently, spending differences are not significant when comparing how resources are allocated by the traditional school district LEA (OPSB), charter network LEAs, and single site charter school LEAs. On the surface, this finding may strike many as a positive example of how the educational marketplace in New Orleans is functioning equitably. Regardless of governance or management structure, LEAs in the marketplace are spending statistically similar amounts of money across all expenditure categories. However, these LEA data have the potential to obscure inequities that exist within LEAs, at the school level. This is particularly true if policy makers are only analyzing aggregated data. At the LEA

level, the educational marketplace appears to be providing equitable resources for all students, regardless of the LEA in which they are enrolled. At the school level, however, large differences exist in the resources being allocated.

If the educational marketplace, through choice and competition, is to improve academic outcomes in schools while also providing equitable options for all students and families, it is important to know more about how governance and management structures are linked to those goals. Does lower spending by privatized schools mean they are educating students more efficiently? Or, are charters schools simply paying less for the same results? Does centralized management provide organizations with the opportunity to spend more efficiently? Or, do central offices use their larger organizations to create tiered systems in which they allocate resources in ways that, while strategic, lead to some schools being under-resourced? Do competition and choice impact certain types of organizations differently than others?

These questions are not easily answered. Competition is an abstract concept, not easily measured. School and district accounting practices don't always provide an accurate picture of the full scope of resources brought to bear in organizations. The link between inputs and outputs in schools is notoriously difficult to establish, and even more difficult to replicate. The evidence presented in this dissertation shows that governance and management do have an impact on how schools allocate resources.

Below, I present several recommendations for educators, policy makers, and researchers to consider as they try to better understand how school choice and

competition impact schools. These recommendations are placed in the context of the New Orleans educational marketplace, but they are applicable to any area that is considering the use of privatization and decentralized management to improve schools.

Recommendation #1: Improve school-level financial reporting to identify specific resources allocated to schools by central district offices, charter school networks, and other organizations. Accurate comparisons of the resources spent in schools are often complicated by the fact that accounting systems do not specifically identify the resources that are spent on schools by outside organizations. These resources may come from centralized districts and charter management organizations that provide facilities, materials, personnel, training, and other services. They may come from non-profit and philanthropic organizations that provide similar resources, including in-kind services that are not easily accounted for in financial documents.

The evidence presented in this dissertation suggests that significant public resources are devoted to schools as Central Office Overhead. As a spending category, the Louisiana Department of Education defines overhead as including a wide variety of activities, including "planning, research, development, evaluation, information, staff, and administrative technology services" (LDE, 2010, p. 75). School-level financial data do not include a breakdown of the specific activities funded by spending on overhead, nor do they accurately track the specific dollar amounts received by each school. Rather, Central Office Overhead is reported as an LEA average, which implies that each individual school receives the same amount of

overhead support. In reality, however, schools receive different levels of support from their centralized management organizations. They may also receive in-kind services and resources that are not easily reflected in financial statements. Training, operational support, personnel and materials all have value. When schools receive those resources from related organizations and external partners, they are able to spend less of their own revenue on those areas, which can create the appearance that the school is spending less, when they are actually spending more. Of course, private resources allocated toward schools may also go unidentified. Outside organizations provide programming, donate materials, and share human resources with schools. A better accounting of all resources spent in each school will help provide a more accurate picture of spending levels.

This is increasingly important as OPSB continues to transition to its role as a portfolio manager, rather than as a direct operator of schools. The planning and oversight activities involved with this new role ensure that resources spent by the district will continue to reach schools. As the OPSB Unification Plan states, "[w]e emphasize that this budget is not just supporting central office personnel; to the contrary, about half of the budget that we envision is dedicated to citywide services that directly serve students and families" (OPSB, 2016, p. 3). If those resources continue to be reported as averages, rather than being clearly tied to the specific schools they serve, some schools will appear to be spending less than they actually are, and some will appear to be spending more. And, the promise of those resources may compel schools to behave in specific ways in order to maximize the amount of discretionary resources provided to the school.

Regardless of the source of a resource, public or private, accurately determining the spending levels of schools in the marketplace will require these resources to be identified and included in school-level reporting.

Recommendation #2: Connect spending to outcomes to determine the true cost of achieving particular goals. Determining the efficiency of a particular school requires more than simply knowing what each school is spending. It requires knowing the amount spent on achieving a particular outcome. There are of course a wide variety of outcomes that schools might pursue, ranging from a modern, well-equipped school building to providing students with supplemental programs like mental health services. Regardless of how schools prioritize resources toward their goals, evaluating the impact of competition and choice on efficiency requires that evaluators use a valid, consistent measure of those outcomes.

This dissertation identifies school spending patterns across a variety of categories, but does not attempt to connect those resources to outcomes. Researchers and policy makers interested in evaluating the ability of market reforms to increase school efficiency will need to analyze spending data in the context of specific outcomes for students. To the extent that academic achievement is a primary goal for schools, standardized test scores can be used to evaluate school efficiency, but other goals may also be of interest to stakeholders. Schools may seek to improve college attendance rates, provide students with industry-based certificates, increase participation in AP courses, engage students in the surrounding community, or other important goals. Identifying specific metrics for measuring those outcomes, and using those metrics in conjunction with school

spending data, will provide a deeper level of understanding on how schools are using resources to achieve their goals.

An analysis of school spending that includes efficiency has important implications for understanding how school resource allocation might impact educational equity. Not all students will require the same amount of resources.

Recommendation #3: Evaluate spending patterns both within, and across LEAs. Centralized school districts and charter management organizations exist to support the operations of individual school sites. In doing so, they build a system of central operations that exists independently from the schools they serve. These central offices provide resources to schools. Yet, variations exist in how resources are allocated to schools within centralized organizations, and how they are accounted for in financial statements.

The research presented here finds that school governance and management structure significantly impact how resources are allocated in schools. Total current expenditures are lower in privatized charters schools than in TPS. Privatized management also impacts spending in a variety of more specific categories. In addition, centralized management impacts spending in specific ways. Policy makers seeking to evaluate school-level spending patterns in the context of market reforms can draw specific conclusions based on these findings. Yet, when data are analyzed at the LEA level, the impact of market reforms seems less stark. LEA spending patterns, on average, are not significantly impacted by governance and management structures.

These findings have important implications for researchers, policy makers, and for families. First, researchers must look at data at both the school and LEA level to gain a full understanding of organizational spending. Resource allocation trends at individual schools do not provide a complete picture of overall organizational spending. If evaluating efficiency is a goal, both school-level and LEA-level spending patterns must be taken into account. This multiple level of analysis is also important for policy makers as they evaluate the impact of market reforms, particularly with respect to equity. At the LEA level, school organizations appear to be allocating resources at similar levels. School-level data suggest, however, that wide variations exist within LEAs. To the extent that money is intended to follow the student in a system of choice, it's important whether LEAs are allocating dollars to schools on an equitable basis, or if they are spending based on internal organizational priorities that provide some students with more resources than others. Accurately attributing specific resources to specific programs and services is also important for determining the efficiency of specific schools, rather than simply evaluating the performance of centralized organizations, which may mask important differences in the amount and type of resources schools are receiving.

Finally, for parents navigating a system of choice, it's important to recognize that spending patterns in one school within a centralized school network do not necessarily imply that other schools in the network will be similarly resourced. Wide variations exist within centralized management organizations.

Conclusion

Educational reforms in New Orleans have built a public school system designed around the market principles of choice and competition. Nearly all schools in the system are charter schools, governed by private, decentralized organizations rather than the locally elected public school board. Reform advocates contend that schools in this educational marketplace, forced to compete for students, will not only find innovative ways to attract and keep students, but that they will be more efficient with their resources as they do so.

The research and recommendations included here are not intended to advocate for or against the reforms in New Orleans. They instead represent a first step in helping to evaluate the impact of school governance and management structures on educational spending. Schools and centralized management organizations must do a better job of accounting for all resources that are connected to schools. An incomplete assessment of those resources does not allow for good comparisons to be made across and within organizations. Once more complete data are available, resource allocation patterns must be connected to outcomes to help determine the true cost of reaching particular educational goals. Greater efficiency in schools should produce better outcomes for students, not simply stem from a reduction in spending. Finally, resource allocation must be examined across all levels of school organizations. Trends within single schools, network schools, and the centralized organizations that support them are all important components of understanding how the marketplace might impact school efficiency, but they must not be examined in isolation. By addressing these recommendations, stakeholders at

all levels can moves past theoretical discussions of how the marketplace might impact school behavior and move on to the important business of evaluating the real impact of school choice policies on our public schools.

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Appendix A

Statistical Tables

Table A-1
Population Current Expenditures Per Pupil

Orleans Parish, 2014-15										
	All public schools		Orleans Parish Schools		Non-network charters		Network charters		All charter schools	
	Mean $ per pupil	% of total	Mean $ per pupil	% of total	Mean $ per pupil	% of total	Mean $ per pupil	% of total	Mean $ per pupil	% of total
Instructional	6,314	50.68	7,238	49.05	6,413	51.18	6,123	50.01	6,241	50.49
Pupil/Instructional Support	1,378	10.87	2,172	14.72	1,142	9.12	1,434	11.71	1,315	10.58
School Administration	1,268	10.11	1,136	7.70	1,355	10.81	1,225	10.00	1,278	10.34
Transportation	837	6.69	530	3.59	666	5.32	996	8.13	861	6.93
Central Office Overhead	1,030	8.22	2,572	17.43	1,360	10.85	598	4.88	909	7.35
Total Current	12,536	100	14,755	100	12,530	100	12,244	100	12,361	100
School Admin and Central Overhead	2,298	18.33	3,708	25.13	2,715	21.67	1,823	14.89	2,187	17.69

Table A-2
Human Resources in TPS and Charter Schools

Orleans Parish, 2014-15					
	All schools	Orleans Parish Schools	Non-network charters	Network charters	All charters
Years of Average Experience - Teachers	8.0	16.4	9.1	6.2	7.4
Average Salary – Teachers ($)	48,139	50,004	48,674	47,522	47,992
Years of Avg. Experience – Pupil/Instr. Support	9.4	20.4	11.0	6.9	8.6
Average Salary – Pupil/Instruct. Support	49,753	50,768	49,390	49,868	49,673
Years of Average Experience – Admin	10.8	13.5	14.1	8.3	10.6
Average Salary – School Administration	65,149	50,641	72,574	61,969	66,295

Table A-3
Comparing Resource Allocation in Individual Public Schools

Per-pupil Current Expenditures						
Dependent variable	Instructional	Pupil/ Instructional Support	School Administration	Transportation	Central Office Overhead	Total Current
Constant	6305.929** (1140.409)	1701.205* (782.51)	1048.333 (731.524)	179.678 (381.576)	1651.793 993.111	11440.164** (2378.442)
Non-network charter	-934.572** (346.070)	-1076.727** 237.46	197.617 (221.989)	206.418 (115.793)	-1400.609** (301.370)	-2503.610* (721.764)
Network charter	-1396.694** (337.710)	-751.460* (231.724)	67.500 (216.627)	233.79* 112.996	-1775.525** (294.090)	-3016.109** (704.329)
Magnet school	444.354 (528.009)	428.697 (362.301)	28.723 (338.695)	397.836* (173.761)	921.823* (459.810)	2052.469 (1101.217)
Elementary/Middle school	217.202 (224.981)	-344.632* (154.374)	72.798 (144.316)	-328.178** (75.278)	-110.244 (195.922)	-448.868 (469.222)
Combo Elem/MS/HS	192.122 (326.239)	-348.439 (223.854)	727.057* (209.269)	-173.761 (109.158)	-297.167 (284.101)	381.272 (680.406)
Alternative setting	113.948 (531.374)	402.159 (364.610)	402.343 (340.854)	-721.841** (177.796)	440.204 (462.741)	508.979 (1108.236)
School age (years)	-15.368 (32.546)	19.827 (22.332)	-3.308 (20.877)	-20.704 (10.890)	-17.508 (28.342)	-53.914 (67.877)
School Performance Score (SPS)	5.894 (5.948)	1.439 (4.081)	-2.608 (3.815)	-2.741 (1.990)	12.869* (5.180)	15.877 (12.405)
% Economic disadvantage	-602.030 (916.048)	248.710 (628.559)	9.174 (587.606)	615.803* (306.506)	814.837 (797.729)	891.111 (1910.514)
% Special Education	10449.087** (2550.752)	1500.748 (1750.233)	1036.632 (1636.199)	4564.160** (853.471)	-6178.775** (2221.290)	17071.090* (5319.858)
Enrollment/1000	-191.812 (327.492)	190.141 (224.713)	58.962 (210.073)	-49.215 (109.578)	132.280 (285.193)	349.522 (683.020)
R-squared	0.361	0.376	0.282	0.649	0.584	0.411
*: p < 0.05; **: p < 0.01						

Table A-4
Comparing Resource Allocation in Individual Public Schools – Categorical Spending

Expenditures as % of Total Current Expenditures					
Dependent variable	Instructional	Pupil/ Instructional Support	School Administration	Transportation	Central Office Overhead
Constant	0.548** (0.067)	0.146* (0.059)	0.098 (0.057)	0.004 (0.028)	0.128 (0.073)
Non-network charter	0.029 (0.020)	-0.060** (0.018)	0.035* (0.017)	0.025** (0.008)	-0.085** (0.022)
Network charter	0.010 (0.020)	-0.024 (0.017)	0.027 (0.017)	0.028** (0.008)	-0.112** (0.022)
Magnet school	-0.054 (0.031)	0.024 (0.027)	-0.019 (0.027)	0.030* (0.013)	0.058 (0.034)
Elementary/Middle school	0.036** (0.013)	-0.024* (0.012)	0.008 (0.011)	-0.021** (0.005)	-0.010 (0.014)
Combo Elem/MS/HS	0.006 (0.019)	-0.030 (0.017)	0.048** (0.016)	-0.017* (0.008)	-0.024 (0.021)
Alternative setting	-0.003 (0.031)	0.033 (0.027)	0.018 (0.027)	-0.054** (0.013)	0.025 (0.034)
School age (years)	0.001 (0.002)	0.002 (0.002)	0.001 (0.002)	-0.001 (0.001)	-0.001 (0.002)
School Performance Score (SPS)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001* (0.000)
% Economic disadvantage	-0.086 (0.054)	0.014 (0.047)	-0.017 (0.046)	0.065** (0.022)	0.061 (0.059)
% Special Education	0.139 (0.150)	-0.076 (0.131)	-0.026 (0.128)	0.253** (0.062)	-0.543** (0.164)
Enrollment/1000	-0.030 (0.019)	0.011 (0.017)	0.006 (0.016)	-0.005 (0.008)	0.003 (0.021)
R-squared	0.240	0.325	0.230	0.654	0.487
*: $p < 0.05$; **: $p < 0.01$					

Table A-5
Comparing Resource Allocation in Individual Public Schools – Human Resources

Human Resource characteristics						
Dependent variable	Average Years Experience - Teachers	Average Years Experience – Admin	Average Years Experience –Pupil Support	Average Years Experience – All Staff	Average salary – Teachers	Average salary – School Admin
Constant	13.059* (5.493)	11.388 (9.537)	0.866 (7.172)	9.328* (4.411)	50566.838** (7576.323)	10623.268 (29379.741)
Non-network charter	-6.945** (1.667)	1.722 (2.891)	-8.498** (2.174)	-4.944** (1.337)	51.077 (2299.118)	23881.391** (8915.604)
Network charter	-8.838** (1.627)	-3.787 (2.806)	-12.194** (2.110)	-7.535** (1.298)	-1830.479 (2243.579)	14316.867 (8700.232)
Magnet school	4.131 (2.543)	-4.430 (4.414)	6.762* (3.320)	3.683 (2.042)	2062.31 (3507.833)	-12983.433 (13602.804)
Elementary/ Middle school	-0.484 (1.084)	-2.109 (1.881)	-0.042 (1.415)	-0.876 (0.870)	-1284.218 (1494.665)	3895.835 (5796.068)
Combo Elem/MS/HS	0.325 (1.571)	-0.688 (2.709)	-0.552 (2.037)	-0.132 (1.253)	1869.185 (2167.375)	13142.217 (8404.724)
Alternative setting	-0.675 (2.560)	-2.513 (4.226)	1.105 (3.178)	-1.029 (1.955)	-10150.685** (3530.191)	25220.184 (13689.504)
School age (years)	0.221 (0.157)	0.169 (0.269)	0.195 (0.202)	0.196 (0.124)	530.004* (216.217)	238.626 (838.453)
School Performance Score (SPS)	0.014 (0.029)	-3.625 (2.683)	0.096* (0.037)	0.029 (0.023)	-86.131* 39.515	197.767 (153.235)
% Economic disadvantage	4.047 (4.413)	2.891 (7.556)	13.513* (5.683)	4.975 (3.495)	-3780.834 (6085.778)	19932.508 (23599.652)
% Special Education	-22.226 (12.287)	-0.251 (0.172)	-0.119 (0.130)	-0.123 (0.080)	36988.841* (16945.952)	-14228.129 (65713.628)
Enrollment/1000	-1.039 (1.578)	-3.625 (2.683)	-0.373 (2.018)	-1.958 (1.241)	3471.893 (2175.700)	-14228.129 (65713.628)
R-squared	0.498	0.312	0.516	0.548	0.252	0.193
*: $p < 0.05$; **: $p < 0.01$						

Table A-6
Comparing Resource Allocation in Local Education Agencies

Per-pupil Current Expenditures							
Dependent variable	Instructional	Pupil/ Instructional Support	School Administration	Transportation	Central Office Overhead	Admin plus Overhead	Total Current
Constant	7307.667** (1019.553)	2328.178* (866.264)	762.853 (899.606)	-117.414 (369.545)	4601.273** (1237.554)	5048.295 (1298.619)	16287.448** (2698.378)
Non-network charter	-538.392 (823.512)	-810.866 (699.698)	281.121 (726.629)	135.405 (298.489)	-1613.133 (999.596)	-1204.817 (1048.919)	-2538.514 (2179.531)
Network charter	-1005.249 (746.450)	-439.068 (634.222)	66.128 (658.633)	198.106 (270.557)	-1467.738 (906.056)	-1620.342 (950.765)	-2408.521 (1975.577)
% Economic disadvantage	-1498.624* (625.175)	-886.050 (531.180)	368.193 (551.625)	468.226* (226.600)	-1128.232 (758.850)	-712.486 (796.295)	-3068.465 (1654.606)
% Special Education	8532.625** (2804.381)	3615.127 (2382.744)	556.069 (2474.455)	3368.862** (1016.470)	-7894.564* (3404.014)	-5940.452 (3571.981)	14044.537 (7422.154)
Enrollment/ 1000	36.967 (156.245)	-49.721 (132.754)	-27.893 (137.863)	-1.309 (56.632)	-156.624 (189.654)	-129.030 (199.012)	-274.818 (413.523)
R-squared	0.250	0.139	0.048	0.513	0.359	0.333	0.131
*: $p < 0.05$; **: $p < 0.01$							

Table A-7
Comparing Resource Allocation in Local Education Agencies – Categorical Spending

Expenditures as % of Total Current Expenditures						
Dependent variable	Instructional	Pupil/ Instructional Support	School Administration	Transportation	Central Office Overhead	Admin plus Overhead
Constant	0.436** (0.072)	0.147* (0.061)	0.040 (0.068)	-0.033 (0.030)	0.323** (0.088)	0.343** (0.073)
Non-network charter	0.059 (0.058)	-0.041 (0.050)	0.042 (0.055)	0.025 (0.024)	-0.109 (0.071)	-0.059 (0.059)
Network charter	0.015 (0.053)	-0.012 (0.045)	0.024 (0.050)	0.025 (0.022)	-0.096 (0.065)	-0.086 (0.054)
% Economic disadvantage	0.004 (0.044)	-0.041 (0.038)	0.045 (0.042)	0.057** (0.018)	-0.057 (0.054)	-0.009 (0.045)
% Special Education	0.131 (0.198)	0.0160 (0.169)	-0.078 (0.187)	0.202* (0.082)	-0.695** (0.243)	-0.684** (0.202)
Enrollment/ 1000	0.013 (0.011)	-0.001 (0.009)	0.000 (0.010)	0.002 (0.005)	-0.012 (0.014)	-0.008 (0.011)
R-squared	0.076	0.134	0.059	0.519	0.375	0.475
*: $p < 0.05$; **: $p < 0.01$						

Table A-8
Comparing Resource Allocation in Local Education Agencies – Human Resources

Human Resource characteristics						
Dependent variable	Average Years Experience - Teachers	Average Years Experience – Admin	Average Years Experience – All Staff	Average salary – Teachers	Average salary – Support	Average salary – Admin
Constant	16.476** (5.865)	14.273 (9.397)	12.433* (5.044)	43447.878** (10131.520)	41420.478* (16742.642)	60189.852 (32666.000)
Non-network charter	-5.288 (4.737)	2.609 (7.590)	-1.455 (4.074)	1549.651 (8183.421)	3611.276 (13523.349)	6295.600 (26384.946)
Network charter	-7.834 (4.294)	-0.461 (6.880)	-4.034 (3.693)	-2426.819 (7147.640)	-257.684 (12257.874)	3900.317 (23915.921)
% Economic disadvantage	-0.392 (3.596)	5.156 (5.762)	-0.123 (3.093)	31.057 (6212.501)	-4323.006 (10266.345)	19282.757 (20030.317)
% Special Education	-24.433 (16.132)	-76.453* (25.849)	-24.341 (13.875)	36488.615 (27867.748)	66316.339 (46052.293)	-76840.945 (89851.062)
Enrollment/ 1000	0.651 (0.899)	0.097 (1.440)	0.621 (0.773)	820.281 (1552.642)	3302.055 (2565.788)	-3077.515 (5006.023)
R-squared	0.236	0.280	0.234	0.064	0.104	0.067
*: $p < 0.05$; **: $p < 0.01$						

Table A-9
Comparing Resources in Centralized Public Schools

Per-pupil Expenditure							
Dependent variable	Instructional	Pupil/ Instructional Support	School Administration	Transportation	Central Office Overhead	Admin plus Overhead	Total Current
Constant	5232.023** (1126.441)	813.125 (735.198)	1406.583* (629.220)	421.251 (361.785)	306.480 (1108.649)	1713.063* (1170.202)	9419.594** (2273.848)
Centralized management	-84.051 (227.968)	508.037** (148.789)	-92.823 (127.341)	52.907 (73.218)	-91.175 (224.367)	-183.998 (236.824)	310.270 (460.179)
Magnet school	268.435 (577.584)	437.243 (376.974)	103.449 (322.633)	442.268* (185.506)	774.416 (568.461)	877.865 (600.022)	1972.130 (1165.919)
Elementary/Middle school	200.513 (247.220)	-335.748* (161.354)	70.887 (138.095)	-359.690** (79.401)	-14.243 (243.315)	56.643 (256.824)	-469.612 (499.041)
Combo Elem/MS/HS	251.399 (356.816)	-228.407 (232.884)	747.887** (199.314)	-251.425* (114.600)	53.696 (351.180)	801.583* (370.677)	706.820 (720.272)
Alternative setting	627.642 (559.597)	420.474 (365.234)	363.732 (312.586)	-530.879** (179.729)	118.935 (550.759)	482.667 (581.337)	1106.421 (1129.610)
School age (years)	12.430 (37.245)	48.322 (24.309)	11.524 (20.805)	-26.688* (11.962)	47.003 36.657	58.527 (38.692)	52.564 (75.183)
School Performance Score (SPS)	9.486 (6.639)	3.621 (4.333)	-1.690 (3.709)	-2.055 (2.132)	15.322* (6.534)	13.632 (6.897)	24.945 (13.402)
% Economic disadvantage	-526.516 (1000.878)	98.186 (653.247)	-168.337 (559.081)	724.556* (321.457)	297.558 (985.070)	129.222 (1039.761)	401.833 (2020.385)
% Special Education	73.646** (22.032)	12.226 (14.380)	18.564 (12.307)	35.038** (7.076)	-44.135* (21.684)	-25.572 (22.888)	146.442** (44.474)
Enrollment/ 1000	-394.130 (454.727)	-564.656 (296.788)	-437.043 (254.006)	-95.470 (146.047)	-761.632 (447.545)	-1198.675* (472.392)	-2043.801* (917.918)
R-squared	0.210	0.302	0.326	0.600	0.343	0.348	0.317
*: $p < 0.05$; **: $p < 0.01$							

Table A-10
Comparing Resources in Centralized Public Schools – Categorical Spending

Expenditures as % of Total Current Expenditures						
Dependent variable	Instructional	Pupil/ Instructional Support	School Administration	Transportation	Central Office Overhead	Admin plus Overhead
Constant	0.546**	0.096	0.145**	0.029	0.041	0.186*
	(0.059)	(0.053)	(0.051)	(0.028)	(0.079)	(0.073)
Centralized management	-0.022	0.041**	-0.011	0.001	-0.011	-0.021
	(0.012)	(0.011)	(0.010)	(0.006)	(0.016)	(0.015)
Magnet school	-0.065*	0.026	-0.012	0.033*	0.046	0.035
	(0.030)	(0.027)	(0.026)	(0.014)	(0.040)	(0.037)
Elementary/Middle school	0.036**	-0.023*	0.008	-0.023**	-0.002	0.006
	(0.013)	(0.012)	(0.011)	(0.006)	(0.017)	(0.016)
Combo Elem/MS/HS	-0.002	-0.024	0.047**	-0.024**	0.000	0.047*
	(0.019)	(0.017)	(0.016)	(0.009)	(0.025)	(0.023)
Alternative setting	0.013	0.027	0.011	-0.042**	-0.002	0.009
	(0.029)	(0.026)	(0.025)	(0.014)	(0.039)	(0.036)
School age (years)	-0.001	0.004*	0.001	-0.002*	0.003	0.004
	(0.000)	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)
School Performance Score (SPS)	0.000	0.000	0.000	0.000	0.001*	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% Economic disadvantage	-0.061	0.007	-0.027	0.076**	0.026	-0.002
	(0.052)	(0.047)	(0.046)	(0.025)	(0.070)	(0.065)
% Special Education	0.000	-0.001	0.001	0.002**	-0.004*	-0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Enrollment/ 1000	0.050*	-0.023	-0.022	0.004	-0.044	-0.066*
	(0.024)	(0.021)	(0.021)	(0.011)	(0.032)	(0.029)
R-squared	0.252	0.310	0.217	0.561	0.354	0.399
*: $p < 0.05$; **: $p < 0.01$						

Table A-11
Comparing Resources in Centralized Public Schools – Human Resources

Human Resource characteristics						
Dependent variable	Average Years Experience - Teachers	Average Years Experience – Admin	Average Years Experience – Pupil Support	Average Years Experience – All Staff	Average salary – Teachers	Average salary – School Admin
Constant	4.747 (5.899)	9.327 (5.586)	-9.032 (7.784)	2.457 (4.798)	53030.046** (7046.748)	36506.846 (26538.785)
Centralized management	-0.485 (1.194)	-5.118** (1.738)	-1.720 (1.575)	-1.162 (0.971)	-1412.091 (1426.112)	-12547.563* (5370.886)
Magnet school	2.778 (3.025)	-6.292 (4.403)	4.998 (3.991)	2.272 (2.460)	2733.760 (3613.229)	-10886.626 (13607.797)
Elementary/ Middle school	-0.002 (1.295)	-1.869 (1.884)	0.290 (1.708)	-0.535 (1.053)	-1732.530 (1546.550)	3344.766 (5824.467)
Combo Elem/MS/HS	1.719 (1.869)	-0.676 (2.720)	0.912 (2.466)	0.742 (1.520)	1768.763 (2232.153)	11265.838 (8406.521)
Alternative setting	-1.388 (2.930)	-1.538 (4.266)	1.658 (3.867)	-0.587 (2.384)	-8604.184* (3500.707)	24621.037 (13184.028)
School age (years)	0.461* (0.195)	0.138 (0.284)	0.439 (0.257)	0.366* (0.159)	503.856* (232.996)	-236.479 (877.486)
School Performance Score (SPS)	0.024 (0.035)	0.052 (0.051)	0.108* (0.046)	0.040 (0.028)	-80.834 (41.533)	173.041 (156.416)
% Economic disadvantage	2.624 (5.241)	3.702 (7.629)	12.648 (6.917)	4.517 (4.263)	-2841.908 (6261.255)	23068.492 (23580.539)
% Special Education	-0.210 (0.115)	-0.315 (0.168)	-0.172 (0.152)	-0.182 (0.004)	278.199* (137.828)	-164.429 (519.075)
Enrollment/1000	-1.604 (2.381)	3.900 (3.466)	-0.726 (3.142)	-0.871 (1.937)	-555.719 (2844.664)	5056.737 (10713.302)
R-squared	0.266	0.292	0.526	0.321	0.180	0.165
*: $p < 0.05$; **: $p < 0.01$						

Table A-12
Comparing Resource Allocation in Charter Schools

Per-pupil Current Expenditures							
Dependent variable	Instructional	Pupil/ Instructional Support	School Administration	Transportation	Central Office Overhead	Admin plus Overhead	Total Current
Constant	5354.309** (1033.050)	1016.343 (707.653)	1250.535 (630.560)	415.898 (356.967)	332.117 (959.206)	1582.653 (1048.644)	9540.161** (2067.031)
Network charter	-361.109 (218.245)	367.305*(149.501)	-74.177 (133.214)	97.189 (75.414)	-433.139* (202.645)	-507.316* (221.540)	-273.449 (436.687)
Magnet school	308.375 (528.597)	488.25 (362.096)	-6.757 (322.648)	444.888* (182.655)	945.583 (490.812)	938.826 (536.576)	2039.068 (1057.670)
Elementary/Middle school	36.914 (235.623)	-425.827** (161.405)	43.647 (143.821)	-376.827** (81.419)	-62.413 (218.780)	-18.766 (239.180)	-804.824 (471.458)
Combo Elem/MS/HS	59.601 (345.522)	-350.199 (236.687)	854.310** (210.902)	-258.646* (119.394)	-176.518 (320.824)	677.793 (350.738)	361.266 (691.346)
Alternative setting	569.728 (513.460)	345.959 (351.727)	412.139 (313.409)	-557.090** (177.424)	116.136 (476.757)	528.275 (521.211)	1016.386 (1027.382)
School age (years)	-17.705 (35.657)	32.814 (24.425)	14.671 (21.764)	-19.990 (12.321)	-1.311 (33.108)	13.360 (36.195)	-13.7 (71.346)
School Performance Score (SPS)	5.311 (6.219)	0.562 (4.260)	-0.920 (3.796)	-1.786 (2.149)	12.512* (5.774)	11.592 (6.312)	17.157 (12.433)
% Economic disadvantage	-414.414 (910.403)	106.525 (623.638)	-142.681 (555.697)	731.650* (314.587)	514.906 (845.325)	372.226 (924.146)	712.634 (1821.625)
% Special Education	79.434 (20.265)	13.686 (13.882)	18.799 (12.370)	34.668** (7.003)	-36.571 (18.817)	-17.722 (20.571)	159.094** (40.549)
Enrollment/ 1000	309.604 (447.392)	-217.439 (306.469)	-318.888 (273.082)	-179.478 (154.595)	-200.608 (415.412)	-519.496 (454.145)	-549.454 (895.187)
R-squared	0.275	0.291	0.361	0.637	0.432	0.424	0.383
*: $p < 0.05$; **: $p < 0.01$							

Table A-13
Comparing Resource Allocation in Charter Schools – Categorical Spending

Expenditures as % of Total Current Expenditures						
Dependent variable	Instructional	Pupil/ Instructional Support	School Administration	Transportation	Central Office Overhead	Admin plus Overhead
Constant	0.550**	0.109	0.134*	0.029	0.040	0.175*
	(0.062)	(0.055)	(0.052)	(0.026)	(0.071)	(0.070)
Network charter	-0.020	0.037**	-0.005	0.006	-0.032*	-0.037*
	(0.013)	(0.012)	(0.011)	(0.006)	(0.015)	(0.015)
Magnet school	-0.066*	0.029	-0.020	0.033*	0.060	0.039
	(0.032)	(0.028)	(0.027)	(0.013)	(0.036)	(0.036)
Elementary/Middle school	0.037*	-0.027*	0.008	-0.024**	-0.002	0.006
	(0.014)	(0.012)	(0.012)	(0.006)	(0.016)	(0.016)
Combo Elem/MS/HS	-0.003	-0.030	0.057**	-0.024**	-0.015	0.042
	(0.021)	(0.018)	(0.017)	(0.009)	(0.024)	(0.023)
Alternative setting	0.013	0.023	0.014	-0.044**	-0.001	0.013
	(0.031)	(0.027)	(0.026)	(0.013)	(0.035)	(0.035)
School age (years)	-0.001	0.003	0.002	-0.002	-0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
School Performance Score (SPS)	0.000	0.000	0.000	0.000	0.001*	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% Economic disadvantage	-0.065	0.005	-0.028	0.075**	0.041	0.012
	(0.055)	(0.049)	(0.046)	(0.023)	(0.063)	(0.062)
% Special Education	0.000	-0.001	0.000	0.002**	-0.003*	-0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Enrollment/ 1000	0.047	-0.013	-0.024	-0.007	-0.016	-0.040
	(0.027)	(0.024)	(0.022)	(0.011)	(0.031)	(0.030)
R-squared	0.243	0.294	0.239	0.618	0.427	0.444
*: $p < 0.05$; **: $p < 0.01$						

Table A-14
Comparing Resource Allocation in Charter Schools – Human Resources

Human Resource characteristics						
Dependent variable	Average Years Experience - Teachers	Average Years Experience – Admin	Average Years Experience – Pupil Support	Average Years Experience – All Staff	Average salary – Teachers	Average salary – School Admin
Constant	6.260 (5.055)	11.643 (8.626)	-8.171 (6.527)	3.707 (4.902)	54022.177** (7381.603)	34228.399 (27545.869)
Network charter	-2.092 (1.068)	-5.705** (1.822)	-4.147** (1.379)	-2.497** (0.865)	-1834.809 (1559.459)	-9375.533 (5819.632)
Magnet school	3.665 (2.587)	-5.783 (4.414)	5.816 (3.340)	2.962 (2.094)	3057.290 (3777.061)	-12701.707 (14095.339)
Elementary/ Middle school	-.523 (1.153)	-1.568 (1.967)	-.404 (1.489)	-.811 (0.933)	-2260.797 (1683.631)	4612.840 (6283.019)
Combo Elem/MS/HS	.879 (1.691)	-.826 (2.885)	-.551 (2.183)	-.072 (1.369)	1392.903 (2468.911)	15569.424 (9213.551)
Alternative setting	-1.940 (2.513)	-1.871 (4.287)	1.458 (3.244)	-.892 (2.034)	-9173.839* (3668.898)	25513.636 (13691.696)
School age (years)	.245 (0.174)	-.031 (0.298)	.130 (0.225)	.180 (0.141)	469.005 (254.785)	150.713 (950.812)
School Performance Score (SPS)	-.002 (0.030)	.037 (0.052)	.080* (0.039)	.020 (0.025)	-94.823* (44.434)	216.511 (165.820)
% Economic disadvantage	3.276 (4.455)	2.850 (7.602)	13.718* (5.752)	4.841 (3.606)	-2639.450 (6505.232)	22029.566 (24276.405)
% Special Education	-.202* (0.099)	-.333 (0.169)	-.128 (0.128)	-.170* (0.080)	273.273 (144.805)	-267.161 (540.389)
Enrollment/1000	1.444 (2.189)	4.879 (3.736)	4.164 (2.827)	1.568 (1.772)	561.130 (3196.814)	-702.448 (11929.959)
R-squared	0.342	0.312	0.383	0.413	0.193	0.165
*: p < 0.05; **: p < 0.01						